

A photograph of an industrial setting. A silver and blue robotic arm (COBOT) is positioned over a metal workpiece on a perforated table. The arm has a yellow protective shield with the ESAB logo. A welder wearing a grey shirt and a black protective helmet is visible on the right side of the frame, working on the metal plate. The background shows a dark industrial enclosure.

# ESAB COBOT: **THE FUTURE OF FABRICATION**

# ESAB Cobot Skyvington Manufacturing Case Study



**Programming simplicity delivers production flexibility**



**Superior quality pulsed MIG system is easy to fine tune**



**ESAB Cobot boosts all aspects of production**

## Situation

Located in Mississauga, Ontario, Canada, Skyvington Manufacturing Inc. is a 30-person “boutique” manufacturer. It has the flexibility to fabricate high-end specialty components for architectural, construction, healthcare and HVAC clients and custom fabricate parts for industrial OEM clients.

The company also offers design, rapid prototype and engineering services, notably for retail displays and store fixtures. By embracing lean manufacturing principles, using metrics-driven operation and employing skilled people, Skyvington Manufacturing excels at both low-volume work and component runs up 30,000 or more.

## Complication

Frustrated with “babysitting” underperforming suppliers, Skyvington Manufacturing brought production in house to ensure quality, precision and scheduling. They added a fiber laser to ensure part consistency and a traditional robotic cell to help with high-volume runs. However, the robot is not without complications.

“Fixturing is difficult, repeatability is difficult without good clamping, and programming is difficult and time consuming,” says company president Brett Skyvington, who is one of the company’s robot programmers. “As a result, you can’t make low- or medium-run parts on a traditional robot.”

ESAB / [esab.com](http://esab.com)





*Users program the ESAB Cobot with a software app and standard tablet.*

## Solution

The ESAB Cobot reduces programming time to minutes because it uses an intuitive software application that runs on a smart phone or tablet. A “Smart Puck” located just above the torch enables the operator to hand-position the torch, then press a button to record position information.

## Results

Skyvington Manufacturing can now automate low- and medium-volume parts while maintaining precision and quality. In the first month of operation, the robot made 25,000 welds.

“When I first saw the ESAB Cobot, it was exactly what I had envisioned. It actually lived up to the advertisement hype about how easy it was to program — we had guys in the sales demo writing programs on it in the first 40 minutes,” says Skyvington.

## Benefits

### 1 Powerful Production Tool

“As soon as we saw the ESAB Cobot solution, I drafted an email to both my operations manager and our production supervisor that was titled ‘The Future.’ I called ESAB Automation Manager Jamie Scripnick on Wednesday at about 4:30. We were in the demonstration facility at 9 a.m. Thursday and inking the ESAB Cobot deal by noon. We knew the ESAB Cobot would move the company in the right direction,” says Skyvington.

Everyone took turns programming the ESAB Cobot. Having personally worked with older style robotics, Skyvington knows that to teach someone even the fundamentals of programming a robot in 40 minutes is a tall order.

“The fact that all four of us were able to program the ESAB Cobot in 40 minutes was incredible,” he says. “It surprised me at how easily it was to program the ESAB Cobot to be able to do various components in the short timeframe. Even to do one of the corners on a traditional robot, between all the air moves and getting the angles and the positions right, it would be hours to get a weld down of that quality.”

# ESAB Cobot Skyvington Manufacturing Case Study



*Skyvington Manufacturing set up the ESAB Cobot with a large Siegmund table so that it can weld on one side while an operator loads parts on the other.*

After the first month of use, Skyvington reports, "The ESAB Cobot has been phenomenal in everything that we put it through. It is a versatile, powerful tool. The quick programming ability is a huge plus because we're a custom shop. We could run six or eight jobs in one day depending on size and number of parts. It's incredibly intuitive."

## 2 Predictable Production

Skyvington Manufacturing runs five welding cells in addition to its traditional robotic welding cell. If a welding operator is sick or misses a shift, the company loses 20% of its manual welding capacity that day, which can create scheduling challenges. Conversely, robots don't get sick. Since the ESAB Cobot landed at Skyvington Manufacturing, it hasn't stopped running and hasn't missed a day.

"As long as I have a job programmed on the cobot, I can put anyone on it," says Skyvington. "If they understand our safety procedures and know what we're running in the ESAB Cobot cell — which is incredibly intuitive compared to a traditional cell — anyone in the shop can step in and run the cobot when needed."

Skyvington is a proponent of having a smaller, cross-trained staff, rather than a larger, specialized staff.

"If anyone wants to learn new processes in the shop, we are happy to start training them," he says. "Having our staff able to pick something up with the ease of the ESAB Cobot is critical for us, because we are that much more effective."

### 3 Increased Production

As customer demands grew, Skyvington Manufacturing sought a new automated solution. With robotic MIG welding, automated laser cutting and Siegmund fixture tables already in the shop, adding a cobot seemed like a natural progression.

"One of the reasons I looked for the cobot was that our welding department was booked out for five weeks solid, and customer lead times were getting pushed out. As a result, some jobs weren't feasible for us to take on," says Skyvington. "In a short period of time since adding the ESAB Cobot, we've seen a significant increase in throughput."

In the first month of use, the ESAB Cobot welded 2,600 dividers that will go into a big box home improvement chain across the United States. The project also required 600 tube caps and then a secondary welding process welding gussets for casters.

"I think the cobot has averaged between 30 and 45 seconds a weld since it came into our shop," says Skyvington. "Over the course of the first month, the metrics available through the software app confirmed we made 25,000 welds."



*Skyvington makes long linear welds with the ESAB Cobot.*

### 4 Production Quality

Based on the performance of the Aristo® 500ix welder and RobustFeed U82, which comes with the ESAB Cobot, Skyvington Manufacturing has been drifting more toward the pulsed MIG process.

"I think we've used pulsed MIG for 80% of the programs we've put through it," says Skyvington. "The precision of the ESAB Cobot is amazing. We can dial in the weld size and heat input, making it easier for our polishers to do their job and ensuring we don't overwork a piece."

He explains that the company maintains a squareness of 0.010 to 0.015 in. on an 8 or 10-ft. gondola upright. When welding stainless steel with traditional welders, controlling heat and distortion is next to impossible. From skip welding to cooling the heat-affected zone by putting ice cubes and cloths behind the welds to dunking welds in a water tank, Skyvington Manufacturing has tried it all. Conversely, the ESAB Cobot and Aristo pulsed MIG system enable the company to fine-tune weld dimensions, travel speed and total heat input by adjusting pulsing variables.

"The ESAB Cobot allows us to achieve our quality standards and produce in a timely fashion, at a cost-effective rate. That's really what we strive for as a company," says Skyvington.

# ESAB Cobot **Skyvington Manufacturing Case Study**

5

## Production Metrics

The easy-to-use ESAB Cobot software app allows users to store and recall weld sequences, get free and fast in-app support and track productivity metrics. By using the metrics, Skyvington has learned that different operators work at different speeds, as well as differ in their approach to loading and unloading the fixtures.

“We are an ERP-driven shop. To have that kind of production data from the software app, especially across different types of components, allows you to dynamically adjust how you run jobs through the shop,” he says.



*The software app for the ESAB Cobot delivers productivity metrics that enable Skyvington to make data-based decisions.*

Before adding the cobot, Skyvington Manufacturing could only use its robotic production cell for large runs because it required complex programming and tooling. With the ESAB Cobot, the company can now automate much smaller runs and run them more profitably.

“To be on the cutting edge of where the welding industry is going also has market value for customers,” says Skyvington. “At the end of the day, everyone likes to see new products and the integration of robotics and automation because they understand that welding equipment like the ESAB Cobot does give you a competitive advantage over other companies.”