



**INTERNATIONAL
STEEL FRAMING**

Roll Formers Designed for Ease of Changeovers: A Use Case Study

A truss manufacturer paid his supplier thousands of dollars to roll form his parts. To save money, (and hundreds of hours waiting on deliveries) he decided to purchase a roll forming machine and bring his production in-house. Frustrated he couldn't find an automatic, multiple profile, gear box driven, cost-effective roll forming machine -- he almost gave up. Then he found [International Steel Framing and Performance 1](#).

Performance 1

- Minimizes changeover time and keeps training time to a minimum
- Automatically adjusts from 22- to 14-gauge (.030" to .075")
- Reduces profile change times by 90%.
- Increases accuracy and minimizes downtime

The Manufacturer's Story

Though his primary market is trusses, the manufacturer now successfully roll forms his own parts and has expanded into wall panels for midrise construction. When he first set out to buy his own steel coils and produce his own parts, he could not find a roll forming machine that was cost-effective or efficient enough for his business.



Inefficient and Expensive Process

For years, the manufacturer bought parts from one of the proprietary truss manufacturers dominating the United States market. From several states away, he designed the trusses, submitted the orders, waited for the supplier to roll form the parts for each one, and incurred the costs of freight and remote manufacturing.

When the deliveries finally arrived, he found the parts weren't all cut to length and didn't have intelligent markings, so he paid his employees to unload the trucks, measure, mark, and cut the pieces, and to do the jiggling for assembly.

The Wrong Roll Formers

The manufacturer started researching roll forming machines and came across a variety of international machinery manufacturers offering **single profile machines**. As the name suggests, they only make one size, like a three-and-five-eighths-inch wide member. They offer some variability, such as two gauges of material, but each machine is stuck with just one profile.

As his search continued, the manufacturer found companies offering a **two-profile solution**, meaning he'd have to purchase two roll forming machines. For example, one profile does three-and-five-eighths-inch wide and 18- and 20-gauge material; the second machine does six inch wide and 18- and 16-gauge material. Even with two machines, it's still not sufficient to build beyond three-story construction.

Undeterred, the manufacturer continued his quest which led him to a couple of domestic vendors that made **multiple profile machines**. Finally, he found a roll forming machine with the ability to do any combination he wanted -- multiple flange widths, from two-and-a-half to eight-inches wide, and a gauge that goes from 22- to 14-gauge material -- all in one machine. Yet, it still wasn't quite right.

Costly Changeovers & Downtime

As the manufacturer delved deeper into multiple profile roll forming machines, he talked to actual users about what it took to do a changeover. Unfortunately, he discovered that it required two individuals -- working with wrenches -- to adjust each roller station. A task that took about an hour each time.

In addition to all the downtime, the cost of a changeover with these multiple profile machines was \$50 or more. That meant if the manufacturer needed to make multiple changes on a single truss profile, or a single wall panel, it might just be a deal breaker because he'd lose the material savings by going to a different profile.

The ISF Decision

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With Performance 1,” said the manufacturer, “it automatically adjusts for gauge so there's no chance you'll get the width wrong, or the machine improperly set. Plus, the line speed is over 120 lineal-feet-per-minute when it's wide open. The versatility, the technology, the Performance 1 was kind of a no-brainer as a decision.

After learning that a construction solutions company offers a roll forming machine that can change profiles in about 5 minutes, and automatically adjusts to do multiple gauges, the manufacturer went with International Steel Framing's Performance 1.

Up to Eight Stories

The manufacturer knows that to do trusses and walls in the United States' and to address midrise construction markets, he can't cut it with a roll forming machine that only allows him to build up to 50-foot trusses. He needs the flexibility to go out to wider spans and taller buildings.

With Performance 1, he goes from a two-and-a-half width to an eight-inch -- and everything in-between -- (including the occasional oddball job when someone wants a five-inch member.)

Wider Savings

Along with its complete profile flexibility -- Performance 1 can also vary the flange -- which saves the manufacturer money.

By varying the flange, the manufacturer can also vary the strength of the member by making it wider. So, if he doesn't need the greater strength, he can use less steel. Conversely, ISF's offering is flexible enough to go from as little as one-and-five-eighths-inch to a three-inch flange width -- all in one machine -- with the ability to go anywhere from 22- to 14-gauge and be used in any width.

Time-Saving Technology

ISF's roll formers are designed for ease of changeovers by taking a semi-automated approach.

Performance 1 has a manual cranking system that moves all of the roller stations simultaneously. Now, the manufacturer makes a profile change in less than five minutes.

This technology is a game changer for the manufacturer. Now that the time and cost of making a change is near trivial, from a design standpoint it's feasible to consider any number of different profiles and engaged combinations.

Think Inside the (Gear) Box

Most multiple profile roll forming machines are chain driven. Chains break (*especially with heavier gauge material.*) When chains break, production stops. And even when chains don't break, they loosen over time. Loose chains require machine operators to constantly check the length of pieces coming off the machine and often stop for manual adjustments.

The manufacturer loves that Performance 1:

- Uses a gearbox system
- Requires less maintenance
- Doesn't break
- Needs no calibration
- Has fewer problems requiring a technically adept operator



Bigger Business

With International Steel Framing's Performance 1 roll forming machine, the manufacturer no longer spends thousands of dollars outsourcing the production of his parts.

He also saves time waiting on deliveries and doesn't have to pay his staff to:

- Unload the trucks
- Measure, mark, and cut pieces
- Do manual jiggling

With the automated technology of ISF, the manufacturer has virtually eliminated downtime and changes profiles in less than five minutes.

Most importantly, the manufacturer has entered the midrise construction market and expanded into wall panels.

Ready to grow your business and your bottom line?

<https://internationalsteelframing.com>

303-579-6277

kdietzen@keymark.com

Performance 1

General Specifications

- **Material:** Galvanized and Cold Roll Steel (CRS) 32 to 66 KSI (221 to 455 MPA)
- **Gauges:** from 22 GA (.030") to 14 GA (.075")
- **Tensile Strength:** 32 KSI to 66 KSI (221 MPA to 455 MPA)
- **Part Size:** 2 ½" to 8" (6.35 to 20.32 CM) to Cee Sections Studs and U Sections for Track
- **Flange size:** 1 5/8" and 2" (4.13 and 5.08 CM)
- **Line Speed:** Variable depending on the punching patterns. Plain track may run up to 120 FPM (36.57 MPM)
- **Approx. gross weight:** 25,000 LBS (11 340 KG) includes De-coiler, Leveler, Punch Presses and Roll Former

Section Applications

- **Dual Arm Decoiler:** Hydraulically driven. The dual-arm decoiler holds two coils of up to 6,000 pounds (2 722 KG) at all times and expands the mandrel using hydraulics, (no manual cranking!), and holds the coil, also generates back tension while rotating.
- **Coil Leveler:** Pinch rollers pull coil stock from decoiler, leveling rollers remove coil, then set and flatten the material.
- **Loop System:** Synchronizes line speed to avoid tension or stretch of the material processed.
- **Feeder:** Used to feed precise length of coil stock to the punch press or shear. Pulls material from loop and stops at desired pitch.
- **Width Wise Adjustable C Punch Presses:** Pre-punches coil stock, suitable for blanking, slight embossing, piercing, coining, and perforation.
- **Rollformer:** 11 stations duplex with split tooling. Horsepower: 30 HP (22.4 KW)
- **Runout Conveyor:** 118" (299.72 CM) conveyor with max weight capability of 46 LBS (21 KG)

