

# Industry Training – Fabricated Metals Manufacturing

The fabricated metals industry is a subsector of manufacturing where metal is transformed into parts or end products through a variety of processes. In this introductory course, we'll review some key segments and characteristics of fabricated metals, look at the features and functionalities in Epicor Kinetic that address fabricated metals manufacturers' needs and talk about how we differentiate ourselves from the competition, take a peek at some customer stories, and learn where to go for more information about fabricated metals.

Select a tab from the top of the screen to get started.

## Objectives

- Segments and Characteristics
- How We Win/Why Epicor is a Good Fit
- Customer Stories
- Resources

## Segments and Characteristics

Manufacturing fabricated metals transforms metals into raw materials or complete products. Fabricated metals are used in a number of industries, including industrial machinery, automotive, aerospace and defense, electronics and electrical, medical device, energy... the list goes on.

Use the buttons on the left to learn about the different types of fabricated metal manufacturers, look at some fabricated metal-specific terms, and introduce the current outlook for the industry. Then, when you're ready, use the tabs at the top to continue.

### Types of Fabricated Metals Manufacturers & Processes

Manufacturing fabricated metals includes everything from machines, metal structures, cars, and airplanes to springs, screws, nuts and bolts. Industry groups found within fabricated metals include:

- Forging and stamping
- Cutlery and Handtool Manufacturing
- Architectural and Structural Metals Manufacturing
- Boiler, Tank, and Shipping Container Manufacturing
- Hardware Manufacturing
- Spring and Wire Product Manufacturing
- Machine Shops; Turned Products, and Screw, Nut, and Bolt Manufacturing
- Coating, Engraving, Heat Treating, and Allied Activities
- Other Fabricated Metal Product Manufacturing

Within those industries, you may find privately owned companies, as well local, state, and federal government companies.

Fabricated metals manufacturers in all industries use a wide variety of processes. Some of the more common processes include:

- Cutting, one of the most commonly used metal fabrication process, cuts sheets of metal, metal bars, or metal rods into smaller sections and different shapes. These cuts are performed on a range of machinery from simple saws to more complex lasers and high-tech machinery.
- Shearing is used when sheets of metal require long cuts. Typically, a sheet of metal is fed horizontally through a metal-cutting machine and is cut.
- Stamping places a blank, or workable piece of metal, into a press that forms it into a specific shape. A stamping press uses a “die” or a tool used to cut and form metal into a desired shape not and uses extreme pressure to shape metals. This may be a single process or could include a series of stages to get the desired shape. Stamping is a cold-forming process usually done on sheet metal.
- Punching creates holes in a sheet of metal, likely to attach fasteners, latches, and other components.
- Forming Metal is the process of shaping metal from a solid state. Most of the metal objects you see every day are created through forming, including metal sheets, wires, pipes, fasteners, and so on. There are several different ways to form metal; some of the more common are stamping and forging.
- Bending or folding is a subset of metal forming, applying force to reshape metal. In fact, it’s one of the most common sheet metal fabrication processes and is used to create angular and u-shapes. Think corners, tubes, and so on.
- Casting heats metal to its melting point, which is then poured into a cast or mold with a desired shape. As it cools, the metal solidifies and can be removed from the cast. Casting is most often used to create complex shapes that would be difficult, inefficient, and uneconomical to make using other methods. Parts for heavy equipment, for example, can be cast in a certain size much easier than manufacturing them by joining multiple smaller pieces.
- Forging, on the other hand, shapes metal through impact or pressure, such as hammering, pressing, or rolling. While you can cold-forged, this process is typically done by heating the metal before reshaping it.
- Welding uses high heat to melt parts together. As the metal cools, it fuses the different pieces together. Often those parts have gone through another process already (Stamping, Cutting, Folding).

Fabricated metals is a broad industry that covers several different areas and processes. This is just a brief overview of some of the more common industries and processes.

### **Fabricated Metals-Specific Terms**

Fabricated metal manufacturing uses metals to produce something. That’s a fairly vague definition; a lot goes into fabricating metals.

The following introduces some fabricated metals-specific terms, including the different processes and techniques that are used to fabricate metals

Metal fabrication is the process of creating metal product by manipulating raw metal. The result may be machines, parts, structure, tools, and so on, all created from various raw materials.

Computer-aided design (CAD) uses a computer program to create, modify, analyze, or optimize a design. In fabricated metals manufacturing, CAD is often the first stage of a project and is used to make precise specs that are then used to create the actual end product. CAD helps manufacturers design and redesign products.

Computer-aided manufacturing (CAM) takes the CAD information or data to control a machine to produce the part.

Speaking of machines, computer numerical control (CNC) is a designation for a machine that uses a dedicated computer to control its actions. This increases the machine’s precision and is often used in a milling process.

Metal typically arrives at the manufacturer in large sheets. Blanking is the process of cutting that larger piece into workable pieces (or blanks) that's then used to create the end product via any number of processes. Blanking is oddly similar to using a cookie cutter where the end result is a piece of metal in a desired shape.

Sheets of metal are expensive; for metal fabricators, buying in bulk can help to reduce material costs. That often means purchasing material in coil form, or a sheet of metal wrapped into a roll. Coil doesn't replace sheets of metals everywhere – there are some parts that manufacturers need to use sheets, while others require coils. Metal thickness and machines also come into play on whether a manufacturer uses sheets or coils for end products.

Speaking of end products, multiple parts made in one operation are referred to as family parts or co-parts. For example, a stamping operation might make a right and left part at the same time.

When creating an end product, manufacturers may have excess metal attached to the product, called flash or flashing, that they need to remove. Flashing can be caused by liquid metal leaking between two surfaces, old or worn models, welding pieces together, and so on. Manufactures deflash, or remove the excess metal, by cutting, breaking, grinding, smoothing, and polishing, to name a few.

Depending on the end product, metal fabricators need metals of varying strength. Heat treating is a way of heating and then cooling a piece of metal to increase its strength.

This is just a sampling of terms. For a more detailed list of terms, see the Fabricated Metals Glossary attached to this course.

### **Current Outlook**

The metal fabrication industry doesn't change as rapidly as other manufacturing industries, but it is happening. Here's a brief look at some of the factors driving that change.

From monitoring to predictive maintenance, automation is becoming more prevalent in fabricated metals. Automated technology in fabricated metals means that manufacturers have higher output and increased productivity. They're also able to better focus on product design and innovation while automated production lines create the end product. Better products mean more customers, which leads to more profits. It's not hard to imagine that automation in the fabricated metal industry improves overall growth in manufacturing, as well as efficiency.

Part of that automation includes collaborative robots or "cobots." Cobots provide metal fabrication manufacturers with safe, versatile, and easy-to-use automation that supports human laborers. That's right. Cobots and automation don't take away from human jobs. They work side-by-side, with the cobots assisting with some of the more mundane tasks that need to get done. In fact, they make manufacturing easier, helping internal teams meet manufacturing demand while increasing employee satisfaction.

Global market volatility and the rising costs of overseas freight transportation are causing many American companies to bring their operations back to the U.S. Reshoring, returning manufacturing jobs to manufacturer's country of origin, leads to new opportunities in a number of sectors in the fabricated manufacturing industry. Regardless of country, a home-based supply chain means that world events don't impact production and fabricated metal manufacturers have more control over their processes and better insight of what's happening in their shops.

The fabricated metals industry is evolving and will continue to do so. New technology and new innovation continue to push the fabricated metals industry forward.

## How We Win/Why Epicor is a Good Fit

The fabricated metals industry needs a solution that helps them manage the complexity of their inventory in a market that's increasingly specialized and volatile. Epicor's ability to compete and thrive in that market relies on the expertise and experience built into Epicor Kinetic.

Use the buttons on the left to get an overview of some of the features and functionality built into Epicor Kinetic that make us a go-to product in the fabricated metals industry, see some of Epicor's competition and how we differentiate ourselves from them, and experience our strength in the market.

Then, when you're done, use the tabs at the top to continue.

### Epicor's Capabilities

Epicor Kinetic is an end-to-end solution for manufacturers. Let's look at some of the unique features and functionality built in to meet the needs of the fabricated metals industry.

The cost and availability of raw materials varies, making it difficult to account for the costs associated with raw materials and to manage job profitability. Epicor Kinetic's robust cost analysis capabilities provide multiple costing options that can be defined at the company, part type, or costing workbench (specific part) level. It includes average, FIFO, lot FIFO, last, lot average, or standard costs. Material costs are highly visible on quotes, jobs, purchase orders, and other critical points in the manufacturing process.

What's more, the General ledger fully integrates with work in progress (WIP) and Cost of Sales.

This means that manufacturers can experience improved job costing, more accurate quoting abilities, and see detailed cost analysis at the part level, all while improving their decision-making and cash flow.

Fabricated metals is a massive industry, making it difficult for manufacturers to maintain their competitiveness in the market. That's where Epicor Kinetic's Customer Relationship Management (CRM) and customer lifecycle management excels. CRM lets manufacturers manage new and existing customers and opportunities, view orders and delivery statuses in real-time, and manage marketing campaigns.

CRM and customer lifecycle management improves customer service and increases revenue opportunities, and, as an added bonus, manufacturers can personalize every customer interaction.

Speaking of personalized, the fabricated metals market is moving towards more specialized and personalized products, which can be difficult to manage and track. Order management in Epicor Kinetic eases a lot of those challenges. Order management supports mixed-mode (make-to-stock, make-to-order, and configure-to-order) manufacturing methods, making it possible to accurately manage multiple business models in one shop. It supports single-line orders as efficiently as bigger multi-line orders, converts quotes to orders, and manages multiple release orders. Order management allows for job-centric adjustments, supporting niche and specialized products without the need to create multiple methods of manufacturing or alternative bill of materials (BOMs).

These features and more lead to improved customer response and satisfaction – they get what they want, without the hassle and reduced risk of product error and rework or scraps, and, most importantly, increased profits for manufacturers.

## **Differentiators & Competition**

It goes without saying that Epicor has competition. There are countless software solutions for every industry. Let's look at some of our top competitors, see what they have to offer, and talk about how we compete with them.

Inverna Stratix bill themselves as the ultimate metal software ERP solution. Their cloud solution includes built in metal-specific terminology and functionality. But, with only approximately 250 implementations, the Montreal Quebec based company has a limited global reach – they're primarily only in North America. Their Linux based operating system offers very basic ERP functionality with no project management or product configuration.

Inverna Stratix's metal specific functionality doesn't separate them from Epicor. Epicor has had a strong presence in the Fabricated Metals Industry for many years. As such, Epicor Kinetic includes numerous metals features like heat number tracking, license plating, and Advanced Unit of Measure. In addition to this, Epicor has far more extended capabilities than Inverna Stratix including project tracking. What's more, our cloud capabilities enable customers to access their operations from anywhere.

Syspro is a trusted ERP vendor with a comprehensive solution. They offer robust financials and inventory management, as well as AI and machine learning capabilities. That said, Syspro has a limited global reach and are only available on premise. Their customer relationship management (CRM) is weak, and they lack HR and payroll capabilities.

Epicor offers strong technology, providing a comprehensive solution and better brand recognition. In fact, the Gartner Magic Quadrant recognizes Epicor as one of the top solutions.

Epicor Kinetic's CRM capabilities help manufacturers personalize every customer interaction, increasing revenue opportunities. That, along with our global reach and Cloud technology keep us ahead of Syspro.

SAP Business One has strong worldwide brand recognition and excellent documentation; however, it is often too complex for many users, and complicated to learn. Its financial reporting tool is not very robust, neither is its manufacturing routing capabilities, both of which are important for fabricated metals.

Epicor Kinetic offers an easy-to-use interface with a complete online training program, including help articles, a training on demand video library, just in time training, and more! We make implementation a breeze and have a considerably lower total cost of ownership of our solutions.

Family-owned and operated, Global Shop offers strong job shop functionality and first-class support. Their software does have a long learning curve that requires extensive training. Written in COBAL, their operating system is on the slower side.

Epicor uses the latest Microsoft technology. And, our solution offers end-to-end functionality, making us the more comprehensive choice.

Epicor builds its experience and expertise into Kinetic, providing a robust solution for fabricated metal manufacturers, making us the go-to product.

## **Sales POV**

Fabricated Metal manufacturers face increased global pressures. As a result, they have to find new ways to remain profitable. Epicor's industry expertise and ability to address the needs of the fabricated metals industry and our experience with the digital transformation help them do just that.

At Epicor, our customers' input guides our products and everything we do, including Epicor Kinetic. We have customer and product advisory boards that recommend product features and functionality and advise us on industry priorities. Whether it's onsite, through our ideas portal, in-app feedback, product surveys, user groups and online forums, we're always connected to customers in the fabricated metals industry and incorporate their product feedback, best practices, and recommendations into Epicor Kinetic.

The digital transformation is sweeping through the fabricated metals industry. What this means is that fabricated metal manufacturers are adopting more digital technology, replacing their manual processes and older system with newer digital processes and technology. They are taking advantage of the Internet of Things (IoT), advanced analytics, the cloud, artificial intelligence, and more. These new technologies are game changers for fabricated metal manufacturers, enabling them to redefine business models, revolutionize internal operations, and improve the customer experience. Let's take a quick look at Epicor Kinetic's role in the digital transformation.

Epicor Kinetic leverages the Internet of Things to provide technologies that connect, integrate, and automate productions through AI, smart sensors, and actuators that communicate with Kinetic. Smart sensors predict equipment failures, remind operators of equipment maintenance schedules, and send alerts.

Epicor Data Collection extends Kinetic to provide automatic production monitoring, optimizing inventory management, delivery logistics, and quality management.

Kinetic, coupled with the IoT, provides valuable visibility and insight into manufacturers' daily business.

Speaking of visibility and insights, fabricated metal manufacturers need a system that delivers relevant reporting and intelligence, as well as real-time, in-depth data to transform day-to-day operations. Through its integrated analytics, reporting, and personalized dashboards, Epicor Kinetic provides real-time visibility into all areas of a business, enables smarter and faster decisions, brings new operational efficiencies, reduces redundancies, and enhances the customer experience.

That brings us to the customer experience – the digital transformation is a response to increased pressure from customers for faster turnaround and customized products. Epicor Kinetic's technology helps fabricated metal manufacturers manage multiple models under one roof, transforms planning and scheduling to address bottlenecks, provides accurate quoting capabilities, delivers standards-compliant processes and products, meeting customers' demands. What's more is, Epicor Kinetic helps manufacturers maintain a close relationship with their customers through strong communications, agility, and flexibility. Our system provides a complete workflow with customer signoff as a step in the initial design or estimate, customer service can log each customer inquiry and provides comprehensive escalation when needed, and it lets manufacturers quickly respond to customer change requests.

In short, Epicor listens and delivers the latest technology to fabricated metal manufacturers in a way that promotes their businesses with a focus on growth, productivity, and customers.

## Customer Stories

Fabricated metals manufacturers are using Epicor Kinetic to advance their business. Scroll through to see what some of them are saying. Then, when you're ready, use the tabs at the top to continue.

### Big Ass Fans

Big Ass Fans' first ERP system promised scalability; however, that wasn't the case. With the company's innovative fan designs quickly catching on in the market, they soon found themselves pushing that system's upper boundaries

“It’s only a ceiling fan, but it’s a very complex product. That drives a lot of complexity on the bill of materials and how all those parts come together on the factory floor. That’s where I think technology is critical, because you can’t manage that level of complexity without having a tight ERP system.” – Bill Nall, CIO

“In order to take advantage of new opportunities, you have to have business intelligence. We think that in the ERP system that Epicor provides, that’s a major component—all of our analytics are built on that. It’s very important for us, because we can’t tell what opportunities we can avail ourselves of if we don’t have the figures. If we can’t quantify it, it doesn’t exist.” – Carey Smith, CEO

### **Mid-West Metal Products Co., Inc.**

Mid-West Metal Products Co., Inc. needed a solution that provided easy access to historical sales information that also included automated shipping, processing, packing, and picking activities across its five locations

“We really didn’t look beyond Epicor for our needs since we knew they were such a good fit. We made the move to Epicor ERP based on the desire to retrieve and review more information companywide through dashboards and reports. Our new goal is to leverage the technology platform to allow us to provide a better way of doing business.” – Chip Rolfsen, ERP administrator

“Since going online with the Epicor ERP system in April 2014, we’ve identified several production inefficiencies, which enabled us to reduce labor costs by 20 percent, while increasing sales by 30 percent.” – Chip Rolfsen

### **Emirates Metallic Industries Company Limited**

Poor processes and controls hampered Emirates Metallic Industries Company Limited's growth ambitions

“What really set Epicor apart from the competition was its industry expertise and partner support. Several of the ERP vendors we spoke to struggled to understand our specific business requirements, and the solutions they offered fell short of our expectations—this wasn’t the case with Epicor. With just a quick overview of all our business processes, Epicor and their partner—Knowledge Web Consultancy—understood the challenges we faced, pinpointed areas for process improvement, and then specified a solution to match those needs.” – Mohammed Alkolak, ERP manager

## **Resources**

This course provided an overview of fabricated metals manufacturing. For more information on this topic and manufacturing, please review additional resources available on Epicor Learning Center, online help articles available from within the product, the Epicor website, and, if you have access to it, the Spark Marketing Resource Center.

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## About Epicor

Epicor Software Corporation drives business growth. We provide flexible, industry-specific software that is designed around the needs of our manufacturing, distribution, retail, and service industry customers. More than 40 years of experience with our customers' unique business processes and operational requirements is built into every solution—in the cloud, hosted, or on premises. With a deep understanding of your industry, Epicor solutions spur growth while managing complexity. The result is powerful solutions that free your resources so you can grow your business. For more information, [connect with Epicor](#) or visit [www.epicor.com](http://www.epicor.com).



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