GLOBAL SHOP SOLUTIONS CASE STUDY

Cox Machine, Inc.

The wind-open expanses of the windswept prairies surrounding Wichita, Kansas, lend themselves to big dreams. In 1954, an experienced machinist named Ernest "Bud" Cox decided the time had come to open his own business. Starting out of a 16x20-foot building, he constructed with scrap wood on his own property, he opened Cox Machine, Inc. for business with a grand total of four tools: a mill, a lathe, a shaper and a drill press. His dream? To build a thriving machine shop to serve the ever-increasing manufacturing needs of America's heartland.

Cox Machine's custom Dashboard in the Customer Service Department.

One of 60 Shop Floor Data Collection stations throughout the Cox Machine shop floor.

Fifty-seven years later, that dream has more than become a reality. It's turned into a world-class contract machine shop serving the general aviation and commercial aircraft industries with a variety of precision-crafted parts and assemblies. From Cox Machine's original one-room building, the firm has grown into two separate facilities that employ more than 160 skilled technicians and support staff. All machining activities are performed at the 80,000-square-foot, climate-controlled facility in Wichita, while sheet-metal fabrication takes place at a 24,000-square-foot facility located in nearby Harper.

From these two locations, Cox Machine provides customers like Spirit Aerosystems, Cessna, Hawker Beechcraft, and Gulfstream with a variety of aluminum structural component parts, such as brackets, fittings and ribs. The company offers a broad mix of machining, sheet-metal fabrication, and assembly services. A Global Shop Solutions customer since 1997, Cox Machine is AS9100 certified, and has earned a well-deserved reputation within the aerospace industry for quality parts delivered on time.

Going Paperless with ERP Software

With numerous aerospace machine shops dotting the Wichita landscape, Cox Machine's primary competitive challenge is not producing a superior part, as quality is a given in the aerospace industry. Rather, it's finding ways to deliver superior overall value to their customers.

To stand out from its many competitors, Cox Machine focuses on offering short lead times in combination with highly competitive pricing. The company also strives to create long-term agreements with customers that allow them to offer lower costs and improve ongoing efficiencies by investing more time and effort in the design, tooling and upfront costs of every part they make.

Implementing this two-pronged strategy requires a lean manufacturing environment, and Global Shop Solutions has played a major role in helping to lean the company's operations. In particular, the Shop Floor Data Collection stations and Document Control™ application have made a huge difference by enabling the company to go totally paperless on the shop floor.

The decision to go paperless came about when Cox Machine reduced its run quantity from six month's worth of inventory to one. This meant that the company was now creating six times as many jobs, which resulted in six times as much paper. Something had to give.

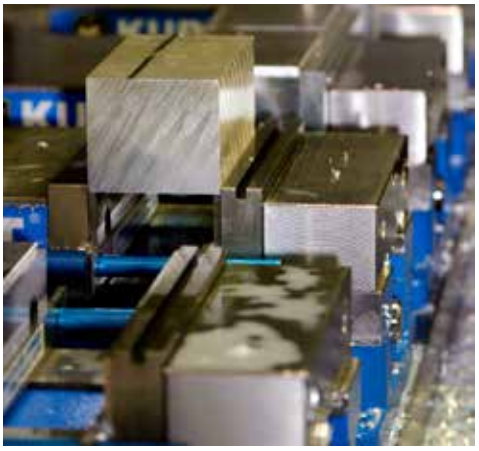
"Prior to going paperless, we printed all the drawings, specs, parts lists, and anything else needed for a job and send them around the shop floor in a plastic packet," explains Jason Cox, Chief Technical Officer for Cox Machine. "When we increased the number of jobs we ran six-fold, it became ridiculous to try to recreate all that paper for every job, so we decided to eliminate all paper."

"Now, document distribution and control is done electronically, with everything linked to Global Shop Solutions through the part number," explains Cox. "Instead of sending all that paper around, operators use the Shop Floor Data Collection screen at their workstations to pull up the list of documents they need for every job. All of which is linked through Document Control."

In addition to job specs, drawings and other technical documents, Cox Machine also uses Document Control to link operators to an internal, web-based database that displays router histories and customer part histories. It also links to "first article" inspection sheets and setup sheets for the machines, which provides a tooling list for the job and identifies which fixture to use and where to put it on the machine. Operators now have all the information they need at their fingertips without having to leave their workstations.

Paperless Cuts Lead Time

Shop Floor Data Collection stations and the Document Control application have also spurred significant reductions in lead times, further contributing to Cox Machine's lean environment.



Raw material entering a multi-stage machining operation at the Wichita facility.

Every machining cell is designated as a workcenter in Global Shop Solutions ERP software, and has its own Shop Floor Data Collection touchscreen station. When operators clock in for the day, they receive the dispatch list for that workcenter, which shows when the previous operation was completed, as well as which jobs the operator needs to run and in what order. The operator then clocks into the job, looks at the work instructions, job specs, drawings, setup sheets, and anything that goes along with the job.

As a result, Cox Machine has reduced its standard lead time for a regular machined part from 16 weeks to an average of four. They can even turn some parts in less than a week when the opportunity arises to set up a work cell with stock material already available in inventory.

"We started out with only three Shop Floor Data Collection stations," recalls Cox, "but we learned early on that the only way you can truly go paperless is for everyone to have their own station. So we now have more than 60 touchscreens – one for each operator – so they can pull up the routers and drawings and access everything they need without leaving their workstations."

"Having so many stations also helps us do other things like track direct and indirect labor more accurately," says Cox. "Our operators even do their own inspection at their workstations. The best part is that we've been able to use touchscreen stations and Document Control right out of the box, without much modification. We use them the way they were designed to be used and they work great!"

Flexible Scheduling to Meet Customer Demand

Cox oversees IT and all the technical aspects of production. He typically starts his day by browsing two of Global Shop Solutions ERP software's most popular screens.

"The first screen I pull up every morning is Supply & Demand," says Cox, "because I can access any information I need from that one screen. Whether it's a part, a job, or anything else I'm working on, I can get a quick overview and then drill down as deep as I want to go."

His second screen? Advanced Planning & Scheduling (APS), for a quick look at where each job currently stands and what capacity issues might be forthcoming in the weeks ahead.

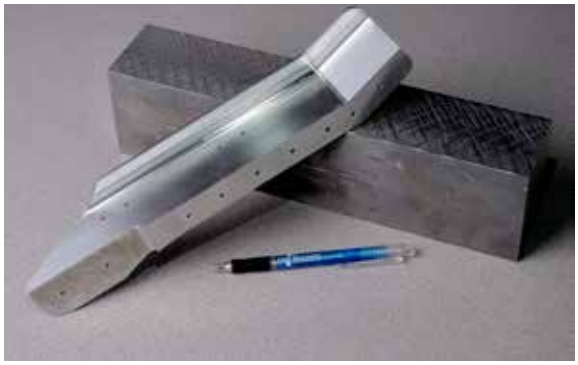
"The graphical scheduling of machines in APS makes it easy to see where we stand with capacity," adds Cox. "And the application allows for partially finite and partially infinite scheduling, which allows us to look out in the future to identify any potential problems. Looking out the first two weeks, we load up the system only for what the capacity of a machine will allow, so that our dispatch lists are accurate. But once we get a couple of weeks out, we have the ability to open it up so we can see if we have a capacity issue four, six, or even eight weeks from now."

"Also, we don't have the luxury of choosing our delivery dates; our customers choose them for us. When we get conflicting delivery dates on large jobs, the system allows us to easily adjust capacity by adding shifts or moving people and workcenters around. APS gives us a high degree of flexibility to accommodate what our customers ask."

First Article Inspection

Cox also appreciates the high level of customization available through the powerful Global Application Builder (GAB).

For example, when Cox Machine makes a new part, their customers demand a very high level of documentation, called first article. This documentation consists of a complete package of all the information on the part, including every dimension, tolerances, and all specs and certifications. Once the customer agrees the part has been fabricated correctly, Cox Machine can ship future lots with much less documentation. But putting the first article documentation together in a timely manner can present a real challenge.



One of Cox Machine's many high-quality aircraft structural components.

In the past, Cox Machine would build the part and then assign an inspector to go back and produce the documentation – a process that often took several days and frequently resulted in late delivery. At Cox Machine's request, Global Shop Solutions wrote a GAB routine that automatically alerts operators when a part requires first article documentation. The operator then calls an inspector to assist with the creation of the documentation while the part is being made, so that the documentation gets completed at the same time as the job. This has greatly speeded up the process while eliminating the errors that can creep in when documenting something that has already occurred.

What Cox really likes about Global Shop Solutions ERP software is how well all the applications integrate with each other, making it easy to extract data from the system and display it in a manner that suits Cox Machine's environment.

Cox recently created a customized Dashboard by writing an interface with Global Shop Solutions ERP software that allows him to display data on large TV screens stationed throughout the plant. For example, the Customer Service Department has a Dashboard with a split screen. The left side displays a customer's inventory at their site and shows how many parts they have below their minimum inventory level. The right side lists every job that is either past delivery date or close to being there.

"We have a 99+% on-time delivery rate," notes Cox. "This Dashboard screen shows the .5% or so where we're late as a way of helping people focus on what needs to get done. We have different Dashboard screens like this located throughout the company, so the information is there for everyone to see without having to look it up in the system. All the data still lives in Global Shop Solutions ERP software. We just pull it out and display it on these big TV screens."

Finally, Cox gives Global Shop Solutions high marks for its solid technical support.

"From an IT perspective, I've found that support makes the difference between a good system and a great one," says Cox. "And one of the things I like about Global Shop Solutions is that we're able to get help when we need it. When we have a problem, we usually get a response either by phone or the web-based support system in a couple of hours. If that doesn't address our needs, we can elevate it fairly quickly to get the problem taken care of. With a lot of software companies, support is like the black hole you don't want to fall into. At Global Shop Solutions, you don't worry about that because you know that everyone really cares."