*Company Profile…*

# Foy Continues to Lead with Powerful Management Software for Extruders Worldwide

By J.D. Schloz, Contributing Editor

Since 1978, Foy Inc. in Farmersville, TX, has been at the heart of continuous improvement strategies for extruders throughout North America and the world. EPICS, a relational database management tool designed by company founder and owner, Jim Foy, represents a state-of-the art Manufacturing Execution System (MES), which includes programs for managing all aspects of a typical extrusion operation. Though compatible with larger operations with existing computerized management systems, EPICS is ideally suited to the lean environment of the independent extruder. Both Foy and EPICS have been highlighted in past *Light Metal Age* articles, and the following article serves as a review of EPICS development, and an update of Foy's efforts to maintain the highest level of performance out of this well-established product.
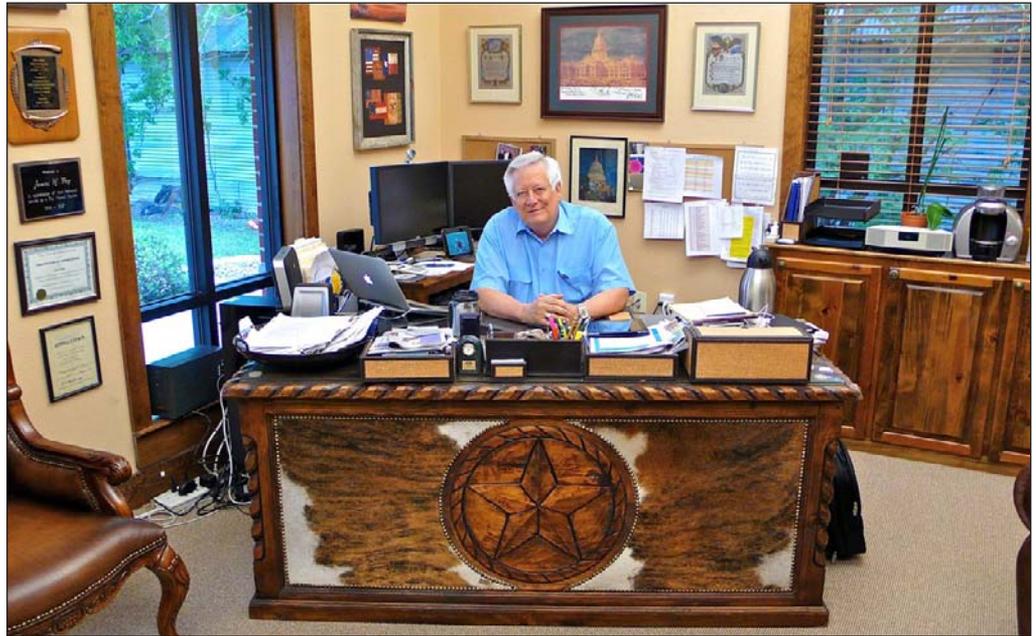

Figure 1. Jim Foy in his office.

## The Early Years

Jim Foy (Figure 1) got his start in the aluminum extrusion business in 1967 at Alcoa's Lafayette, IN, plant. His first assignment there was in the tube mill, developing practices for Alcoa's new experimental indirect extrusion press. Excelling in his tasks, Jim was promoted in 1969 to Division Industrial Engineering (IE) manager. When Alcoa consolidated later that year, Jim inherited IE responsibility for the die shop and billet casting areas. Shortly after taking on these increased responsibilities in 1970, Foy received an offer for the position of corporate director of IE for Texas Aluminum Corp., in Rockwall, TX. At the time, Texas Aluminum was the largest independent extruder in the U.S., with plants in Texas and California, producing windows and other fabricated and finished products. Jim worked for three years at Texas Aluminum on an experimental indirect press known simply as the "Texas Press." Innovative features of the press included replaceable backers with varying hole counts.

*Texas Press:* In 1973, Texas Aluminum Corp. was purchased by Howmet. The resulting turmoil—not to mention increased bureaucracy—motivated Jim to seek other employment, whereafter he took up work as plant manager for Southwest Typographics, a regional typesetting business. Then, in 1974 Dick Pickens (former owner of Texas Aluminum Corp., and president under Howmet) notified Jim that he was leaving Howmet, and asked for Jim to assist in starting a new venture—Texas Extrusions. Jim gladly accepted, happy to return to aluminum extrusion. During the entire first year Jim worked out of a tiny office building in Rockwall, TX. The business model for Texas Extrusions involved development of novel indirect presses based on the "Texas Press." These presses were to serve two purposes—to demonstrate the technology for sale and produce extrusions for market. Ted Groeningen, who worked for Alcoa Dana Point at the time, was tapped to assist in these initial designs.

In 1975, Texas Extrusions found a site for their extrusion facility in Farmersville, TX. During the first months, Jim lived on-site in a small metal building. Both the plant and the first press were built simultaneously beginning in March. Plant and press were completed, and extrusion commenced in the fall. For three years, Jim acted as president of Texas Extrusions, with Dick Pickens as owner and chairman of the board. During this time, Jim was responsible for the extrusion operation as well as directing sales.

## Designing EPICS

For Jim Foy, 1978 was a pivotal year professionally. With the introduction of the Tandy TRS-80 personal computer (the first truly viable consumer PC), Foy immediately recognized the potential of harnessing this new technology to the extrusion operation. Foy wrote programs to calculate press practices, and to aid in the design and testing of future indirect presses for Texas Extrusions. Though frustrated by spending so much time on R&D and not enough on production, his experience working with the fledgling PC technology allowed him insight in the transformative power of these machines. This was reinforced each time a potential customer visited Texas Extrusions, when they would spend most of their time and interest around the magical little box seated at the operator console, rather than the presses themselves.

So, in 1978 Foy decided his destiny was to exploit this new technology as his own business—Foy Enterprises (later to become Foy Inc.). The resulting product, la-

beled the Foy PS, was a concise MES tool tailored to extrusion manufacturers. The program consisted of stand-alone TRS-80 units, with programs and data stored on 5 1/4″ floppy disks. This system was designed to be located at the press, where the operator could enter relevant data and print resulting reports on a nearby printer. Figure 2 shows one of the original microcomputer TRS-80 PS platforms.



Figure 2. An early microcomputer TRS-80 platform with memory storage consisting of two 5 1/4″ floppy drives.

Foy's first customer was Bob Russell of Russell-Anaconda (Miami Extruders), and soon afterward the company attracted Wells Aluminum to its services. Clever marketing instincts then led Foy to attend the Texas Municipal League, where he demonstrated a different version of his technology for municipal use. This led to a contract with the Farmersville, TX, municipal supply for billing software. Other municipalities signed on, attracted by the program's simplicity and effectiveness. By 1981, Foy had secured over 30 customers, mostly in the aluminum extrusion industry, but also a small number of municipal contracts. Since most of the money was in extrusion, though, Foy wisely decided to focus future development on that particular market segment.

In the mid '80s, programming whiz Bill Gates developed a language to port the new Motorola Xenix operating system to the Tandy 64 system using a multi-user interpretive version of Basic, giving the PC a significant boost in performance. Taking advantage of this increased computing power, Foy updated the original version of his software in 1986 to allow a multi-user interface with stand-alone workstations. This new version was dubbed "Extrusion Production Information and Control System (EPICS) – PS2." For an extrusion plant, these workstations were typically located at the operator console, as well as at the die shop and extrusion managers' offices. With these new capabilities—including order entry, invoicing, shipping, and maintenance planning features—EPICS PS2 became an attractive option to customers wishing to increase planning and order tracking capabilities.

At that time, EPICS was a fully customized program, tailored to each facility's specific needs. This meant that each customer's version of the Foy software had to be rewritten individually when the upgrade was made, and furthermore had to be done on-site. In order to accelerate the development timeframe, Foy hired a newly graduated Computer Science major from Georgia Tech named John Stenger, who remains with Foy to this day as vice president. After upgrading the 40-odd existing customers, it became clear to Foy that a standardized package, with the capability to switch different features on or off, would be much easier to work with, particularly when up-

grading the software. This development was completed in 1990, and the new program received a welcome reception from EPICS customers.

Another milestone occurred in 1994, when EPICS was rewritten to incorporate relational database management in the system. For this, Foy chose Microsoft's SQL Server due to its simplicity and low cost (though a certain number of users required Oracle, which was also ported). This latest version was partly funded by a major aluminum company, who decided to leave the extrusion market halfway through the EPICS development. Undaunted, Foy completed the project, recognizing the increased power and efficiency resulting from the update. This latest version was so successful that it survived six years without significant updating. In 2000, EPICS was rewritten for the new 32-bit OS, and at the same time the notorious "Y2K" bug was addressed.

More recently, Foy has developed two exciting features that dramatically increase its effectiveness for the larger plant. The first, EPICS Link, allows the EPICS system to synchronize data sets with supervisory systems. The second feature, Multiplant EPICS, allows data from multiple facilities—including remote fabrication and finishing operations—to be managed from a single EPICS database.

*Program Features and Functionality*

EPICS is, computationally speaking, a client/server relational database management tool. The program gives the user flexibility to incorporate a variety of third-party applications (e.g., Microsoft Excel, Crystal Reports, and Microsoft Access) that increase the functionality of the system. The system runs under the Microsoft Windows environment, which makes it intuitive and familiar for most users (Figure 3).



Figure 3. Typical EPICS workstation at extrusion press.

From a user standpoint EPICS is an integrated MES, tailored specifically to the extrusion operation. As such, it fills a niche between Supervisory Data and Control Systems (SCADA) and full-blown Enterprise Resource Planning (ERP) systems. EPICS handles everything from sales to shipping, and includes various modules that can be switched on or off depending on user preferences. There are three editions of the software: Enterprise, Basic, and Lite, all three retaining similar power and functionality, and differing chiefly in the number of licenses attached. The Enterprise edition is Foy's most popular product, as it is able to be configured to any size extrusion operation (including multi-plant operations). For small extrusion facilities, the Basic edition is the most common choice, since it contains the same functionality of the Enterprise edition, and is only limited in the number (six) of concurrent licenses available. The Lite edition is designed around a single-press operation, with only one license. The major functions of an extrusion process are handled by EPICS, with a feature set including a variety of tools for: Order Maintenance, Customer Service, Production, Management, Billet Maintenance, Shipping, and Invoicing. Some sample screen shots of the Windows environment (input form, die viewer module, and die profitability report) are shown in Figures 4-5.

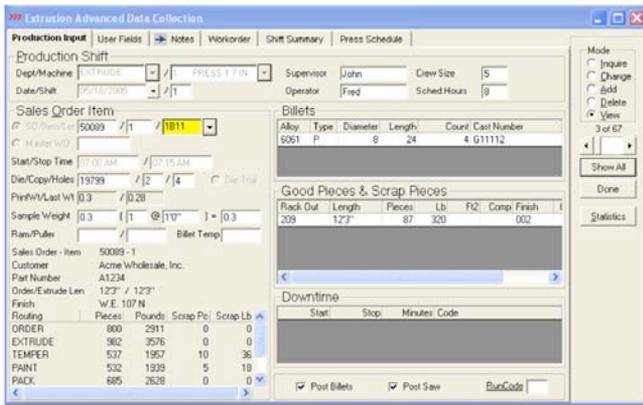While EPICS is a proven performer in MES software, it can be said that no such system or program can be

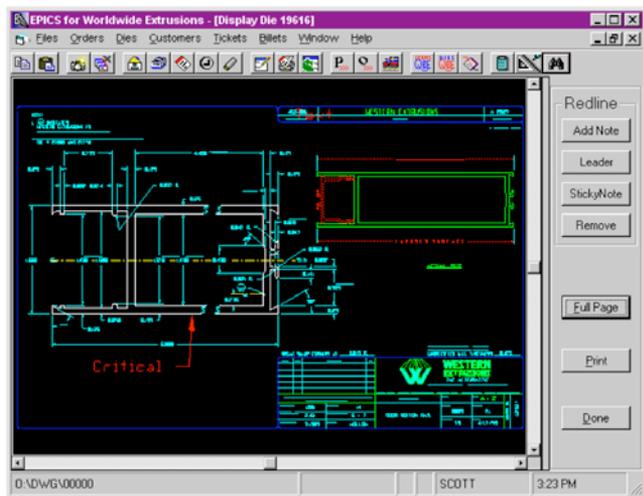Figure 4. Sample screen shot from Production Input Form.



Figure 5. Sample screen shot of one-click Die Viewer Module.

truly effective unless the user understands how it functions. To address this, Foy maintains a large, modern training room at its corporate offices where new users are required to attend a training session. Ordinarily, this includes not only management personnel, but also representatives from the IT department. The training is thorough enough that these employees are then sent back to their company to train the remaining workforce in the system's use. Once operators are trained in EPICS, a Foy representative attends the launch of the system at the customer's site to take care of any minor issues that may need to be addressed. This process has resulted in a very high success rate for EPICS installations.

As with all software, EPICS requires regular updates to keep the program effective and steadily improving across the spectrum of features, and also whenever a substantial change in the computation environment occurs. In order to address this, Foy provides a software support policy priced at 15% the original purchase price of the system. Additionally, Foy holds periodic user's conferences, where ideas from the actual users on how the program can be improved are solicited, and historically, have been widely implemented. Foy himself acknowledges this to be of great benefit to both Foy and its users, as it has been a major contributor to the increasing effectiveness of the EPICS software over time.

### Business Strategies and Challenges

Foy's business model of simple, effective MES programs is particularly attractive to small- and medium-size extruders. EPICS is not always attractive to larger manu-facturers who run existing ERP systems. This is not to say EPICS is incompatible, rather, that the amount of time and effort required to link to these systems is more costly and cumbersome, and renders the stark efficiency of the EPICS software less efficient than if it were the sole system for the extruder. Working with smaller, independent customers also means that a word and a handshake are normally all that is required to secure contracts (though formal contracts are executed). In terms of marketing, Foy's approach is minimalistic. Lacking a professional sales staff, most new business comes through reputation and word-of-mouth.

In recent years two key challenges to small extruders have arisen. The first challenge was the result of industry consolidation—and the resulting increase in competition overseas—as the larger aluminum companies focused their efforts on increasing production in regions of the world where labor and energy are cheaper. During this consolidation over the past decade Foy did lose a few customers, but on balance (and paradoxically) experienced a net gain in business. The second challenge was the recent downturn in the global market for extrusions. During this time, Foy experienced a precipitous decline in new system sales; however, the presence of ongoing software support policies has kept the company healthy during this challenging period. Most recently, Foy has begun to see signs of recovery in its new system sales.

### 2011 and Beyond

In keeping with the company's strategy of making use of technological advances, EPICS continues to be revised to improve its power and performance. With the increasing use of 64 bit operating systems, EPICS is currently being rewritten for compatibility with these systems. One particularly exciting addition to the list of features is a planned iPad platform, where managers and sales personnel can track in real time the status of orders in a detailed format. Both changes are expected to take place in the coming months.

### The Right Tool for the Right Customer

When it comes to excellence in products and services, there is no substitute for experience. With over 30 years spent addressing the organizational challenges of the extrusion operation, Foy has positioned itself to develop and offer customers highly specialized and effective tools for managing the extrusion operation. Rather than try to be everything to everyone, Foy has wisely chosen a niche of products and customers that fit together seamlessly.

**J. D. "Dave" Schloz,** *since his graduation from Colorado School of Mines, has worked exclusively in the aluminum industry, and in numerous roles regarding aluminum production including equipment design, metallurgical analysis, process support, research and development, and technology project management. His specific areas of expertise are ingot and billet casting, homogenization, extrusion, and heat treatment of both common and hard alloys. In 2009, Dave established a consulting business, Viking Metallurgical LLC, in order to provide independent, unbiased technical service to the aluminum casting and extrusion industries. In his 15 years as an aluminum professional, Schloz has participated in countless troubleshooting cases throughout the world, and provided high-level technical support to managers, engineers, and sales personnel. He is also the author of multiple industry papers concerning casting and extrusion performance and productivity. He can be reached by email at: jds@viking metallurgical.com.*