



Pressing for Growth

A new NST press from Dayton, OH, U.S.-based AIDA helps Empire Comfort Systems keep up with the rapid growth of Empire's outdoor cooking, space heating, and fireplace product lines.

From a small sheet metal shop that opened in 1911, Empire Comfort Systems Inc. has become a household name with the most diverse line of gas space heating products in the world. Equally well known for its fireplace and Superb outdoor cooking products and Broilmaster premium grills, Empire is charging ahead with a substantial growth rate of more than 20 percent annually over the last 3 years. Not surprisingly, ongoing support of its core business and new product introductions demanded additional press capacity. Empire found a flexible solution in AIDA's tie-rod straight-side NST 300-ton press designed specifically for general purpose and utility work.

Averaging eight to 10 new product introductions a year since 2000, Empire, based in Belleville, IL, U.S., recently acquired the Broilmaster Grill line. "We've experienced a phenomenal number of new product offerings over the last few years," confirms Don Ried, manufacturing engineer for Empire. With gas heating products as its core business, Empire has also experienced rapid growth in its fireplace line, which is anchored by the company's patented glass-filled fireplace gas burner. The product is said to significantly reduce the size of the burner unit and provide the most realistic flame pattern found in the hearth products industry.

"The challenge we faced was that we had several large progressive dies which could only be used on one 300-ton press," Mr. Ried explains. "In addition to supporting production goals for our core business and our fireplace burner line, we had initiated lean manufacturing processes that would allow our company to meet customer requirements in a matter of days instead of weeks. With just one press able to handle the larger

dies, we knew if we experienced a breakdown, we would be facing a serious work stoppage with downtime of two to three weeks."

Aside from additional press capacity, Empire was looking for a press that had a 60-by-120-in working area. "AIDA's NST solved our capacity issues," says Mr. Ried. Empire installed the NST in 2001 as a stand-alone system that incorporates a Cooper-Weymouth Peterson coil handling and servo-feed system. The NST produces parts for Empire's Broilmaster gas grills and components for its fireplace and log set burners using materials ranging from Type 304 to 430 stainless steel, CRS, galvanized steel, and hot-dipped galvanized. Empire is introducing several new heater models this year and plans to use the NST for future parts production for those new models.

With the demands of lean, smaller lot sizes combined with quick die changeovers and Empire's need for reliability, the company had some initial concerns about placing its dependence on a new press design. "We were willing to take a hard look at AIDA's NST for two reasons," Mr. Ried explains. "We had a track record of experience with a 165-ton AIDA gap press installed in 1982. The AIDA gap press has run for 20 years with minimal downtime. We've rebuilt the feed system twice, but never performed any work other than normal maintenance to the press. Secondly, our concerns were completely eliminated when we were briefed on how the NST was being manufactured."

Designed at AIDA's North American headquarters, the NST was also machined and assembled at the company's manufacturing facility in Dayton, OH. "The machine's design was impressive," Mr. Ried says. "AIDA took a lot of the features from its top-of-the-



AIDA's tie-rod straight-side NST Series press was designed specifically for general purpose and utility work and offered Empire Comfort Systems high quality at a cost-effective pricepoint.

line stamping equipment like its PMX, and implemented them into the NST, minus the added cost. That meant we got a lot more bang for our buck."

For Empire, press rigidity and the ability to meet tolerances are essential ingredients to the consistent high quality of the products the company produces. "For our quality goals, one of the best things AIDA did aside from the NST's rigid construction was to take the ball and socket arrangement from its PMX and build it into the NST," explains Mr. Ried. "AIDA's ball-type slide connection results in reduced clearance and maintenance. The NST's pre-loaded roller slide guiding, another design item typically found on more expensive presses, improves die life and part quality. A high-energy drive is included for work being done higher in the press stroke."

The NST is also equipped with AIDA's patented Hydraulic Overload Protection system (HOLP), which is said to operate 7 to 10 times faster than other systems currently

available on the market. The slide connection itself is configured to operate as a high-speed valve, eliminating pressure relief valves and large hydraulic flow systems found on older design presses with wrist pin and saddle bushing connections. As a result, die and press components are reportedly protected beyond the level provided by conventional presses.

The NST currently operates 8 to 12 hr a day, 5 days a week and produces lot sizes of 1,000 to 10,000 parts for a total of about 40,000 parts per month. Empire expects production to increase up to 100,000 parts per month, depending on its season-driven production cycles.

Re-engineering current dies to the new press, Empire is also using some brand new tooling. "We've found that the quality of parts produced by the NST, which require tolerances as close as +/-0.007, is very high," notes Mr. Ried. "It is easily the quietest machine we have in the plant and probably the cleanest. Most decent-sized presses have oil that is constantly dripping everywhere—you don't see that with the NST."

For Empire, the NST's wide profile allows for easy access to tooling and ancillary equipment being used for a particular set-


up. "Press set-up is also easy," Mr. Ried adds. "Unlike our other presses, the NST displays full diagnostic capabilities on a user-friendly control panel with touch screen. In most cases, our operators are able to solve problems without waiting for maintenance. We found that our learning curve was reduced to less than two days for a machine and control system our operators had never been exposed to."

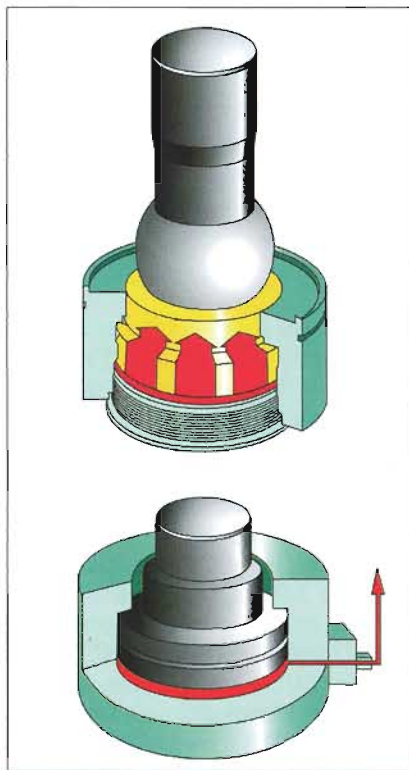
AIDA's NST also makes it possible for personnel to access all vital mechanical, electrical, and pneumatic systems with minimal effort. "One of the biggest complaints our maintenance personnel have had in the past is that they always had to move or remove items to conduct parts maintenance or address a problem," Mr. Ried explains. "The NST, by its very design, allows for quick parts maintenance, a critical element in sustaining a lean manufacturing environment."

AIDA's NST will also play a role in Empire's plans to begin marketing itself as a contract stamper for the appliance, outdoor equipment, home product, and general utility mar-



The NST's pre-loaded roller slide guiding, a design item typically found on more expensive presses, is said to offer improved die life, part quality, and a lube-free die space.

kets. With nearly a century of experience, Empire's goal is to maintain its industry lead through a combination of quality, innovation, and flexibility. More importantly, the company will continue to put the pieces in place to serve the needs of its customers. 



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