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Featuring

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The Acquisition of Modern Aluminum Extrusion Systems

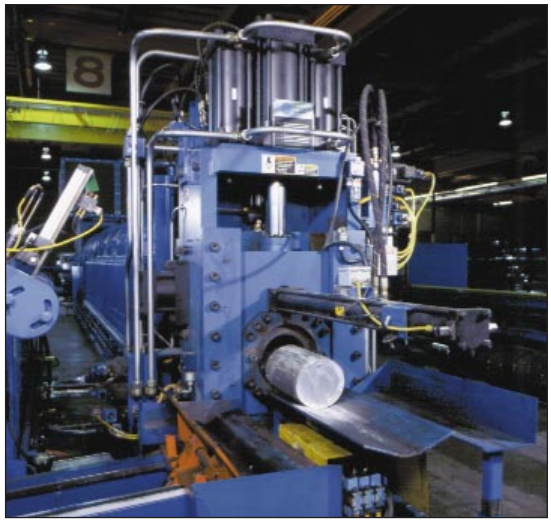
by Roger A.P. Fielding, BENCHMARKS

The first article in the "Acquisition of Modern Aluminum Extrusion Systems" series presented the rationale for modernizing an aluminum extrusion plant. Entitled ***Motivation***, the article introduced profit as the prime force driving change. Measured by reduced conversion costs, profits result from shorter lead times, improved productivity, and enhanced recovery. Additionally, the intrinsic safety and reduced emissions from state-of-the-art equipment ensure that one can stay in business.

This insight into motivation is a product of the Aluminum Extruders' Council International Technology Exchange Tour of Europe in 1995, later reported in *Light Metal Age*. Tour participants observed what some of the leading European extruders were doing to modernize their plants. *Light Metal Age* reported that:

- *90% of the extrusion presses visited were fitted with hot log shears;*
- *50% had multiple pullers;*
- *60% featured automated handling systems; and,*
- *75% had stackers at the finish cut saw.*

Why was this equipment acquired? What does each part of a modern aluminum extrusion system contribute to maximizing profit? The chart below illustrates.



Integration of extrusion equipment into an automated system brings other benefits. To maximize their effectiveness, aluminum logs must be of consistently high quality, and extrusion dies must work every time. The metallurgical structure and properties of the aluminum must be consistent from log to log and from billet to billet. The die must go to the press and deliver the

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EQUIPMENT	BENEFITS
Hot Log Shears	Hot log shears improve recovery at the extrusion press by ensuring that the correct weight of billet is delivered to the press, every time.
Multiple Pullers	Multiple pullers, cutting on the fly at the stop mark, improve quality and recovery.
Automated Handling Systems	Automated handling systems reduce labor, improve quality, enhance recovery, and initiate machine-paced production.
Saws and Stackers	Automated saws and stackers further reduce labor, improve safety, and boost recovery at the finish cut saw.

President's Message

Lawrence R. Difatta
President of Granco Clark

The last issue of this newsletter discussed the merits of partnership between supplier and customer. While it espoused certain benefits of such a relationship, it did not describe the characteristics a qualified supplier/partner should possess in order to deliver a value-added dimension to the relationship.

*It seems, then, that **comprehensive** is the key word for this discussion. To be a contributing partner, a firm must be capable of correctly identifying need, developing a well-based solution, executing in a timely manner all associated engineering and manufacturing issues, supervising the installation, and supporting the equipment in subsequent years. Easy to say . . . done well by some . . . done exceptionally well by Granco Clark.*

*We do it exceptionally well because we can, which brings me back to the word **comprehensive** and the characteristics of a legitimate supplier/partner. The organization that can best serve as an extension of your business is the one which can deliver **speed** — speed in responding to questions, proposals, meeting requests, site visits, problem solving, project execution, spare parts delivery, approval drawings, operating manuals, and most importantly, speed in delivering sound technology-based solutions.*

*A close second is **credibility**. Talking the talk is easy. Delivering upon those words is where differentiation enters the picture, separating contenders from pretenders.*

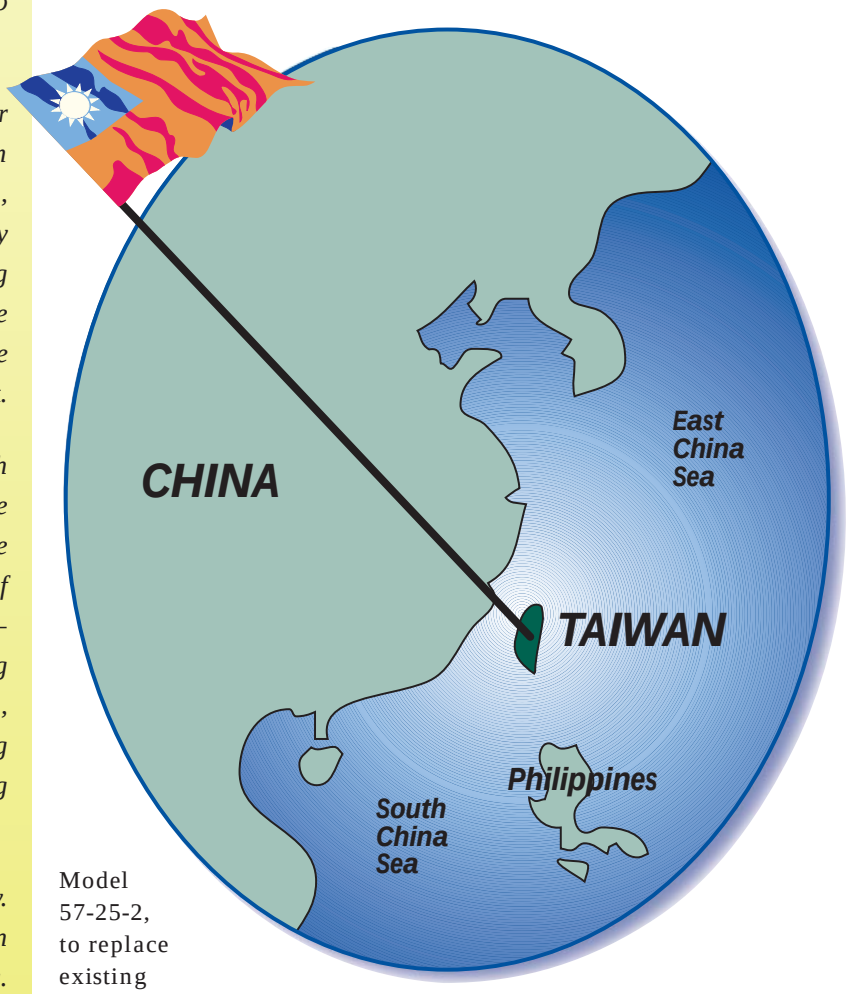
At Granco Clark, we say what we do and do what we say. When commitments are made, whether during pre-sale negotiation or post-sale installation, that commitment becomes a personal matter for the members of our team who thrive on creating customer evangelists within the industry. That commitment is then backed by access — access that goes right to the president for any and all needs.

We are here in the U.S. We have the whole package. We are at your service.

Granco Clark Serves Taiwan

Chyun Sheng Industries, a multi-press extruder located in Ping Tung, Taiwan, recently purchased a Granco Clark double end flow age oven. This age oven will increase the company's capacity and improve the properties of their products. Chyun Sheng is a current user of a Granco Clark billet furnace.

Based in Kaohsiung, Taiwan, **Formosa Shinn Yuan Industrial Company, Limited** is a manufacturer of architectural shapes including doors, windows, skylights, and curtainwalls. Formosa also provides custom extrusions to other manufacturers. The company recently purchased two LPG-fueled billet furnaces,



Model 57-25-2, to replace existing electric units. One furnace will provide 2,000 kg (4,400 lb) per hour of 152-mm (6-inch) billet for a 1,650-ton press. The other will produce 2,300 kg (5,000 lb) per hour of 178-mm (7-inch) billet for an 1,800-ton press.

Yuangee Industrial Company, Limited, located in Tainan, Taiwan, is replacing an electric billet oven with a Granco Clark Model 45-15-2 billet furnace, Yuangee's second Granco Clark billet furnace. The furnace will deliver 900 kg (2,000 lb) per hour of 101-mm (4-inch) billet, and 1,000 kg (2,200 lb) per hour of 127-mm (5-inch) billet.

New Equipment Installations

Australia

G. James Australia Pty. Ltd.

G. James Australia Pty. Ltd. will incorporate a new Granco Clark furnace shear system in its plant near Smithfield, Australia. The Model 812-40-4 furnace will interface with a Model 9/12 shear. A unique feature of this system is a billet bypass system which will allow a limited number of precut billets larger in diameter than the shear rings to bypass the shear. This project is being coordinated through Granco Clark's Australian and Southeast Asia licensee, Furnace Engineering of Melbourne, Australia.

South American Sales

Age/Anneal Oven

Aluminio de Panama

Panama City's Aluminio de Panama recently purchased a new 2,500-ton extrusion press. Granco Clark is installing a "Hot-Jet" billet furnace, shear, and transveyor to complement the new press.

Phelps Dodge Conal

Based in Valencia, Venezuela, Phelps Dodge Conal will install a new Granco Clark reversing end flow age/anneal oven for coil annealing aluminum wire and cable.

Egypt

High-Efficiency Cooling Duct

Egyptian International (EIPAL)

Located in Giza, Egypt, EIPAL began operations in 1995 with a 2,200/2,500-ton extrusion press and a state-of-the-art Granco Clark handling and heating system.

EIPAL recently purchased a second press and a second Granco Clark system with handling equipment including a high-efficiency cooling duct system, double puller, one-man stretcher, auto saw and gauge. The company also installed Granco Clark heating equipment, including a "Hot-Jet" billet furnace, log shear, and transveyor.

AL NASR

AL NASR, a new extrusion company in Abou Rawash, Egypt, recently purchased a 2,200/2,500-ton press and is presently installing an automated Granco Clark system with handling equipment such as a billet taper quench, high-efficiency cooling duct system, double puller, one-man stretcher, and auto saw and gauge. Heating equipment procured by AL NASR includes a Granco Clark "Hot-Jet" billet furnace, log shear, and transveyor.

The United States

Multi-Compartment Die Oven

Extrudex Aluminum

Based in North Jackson, Ohio, Extrudex Aluminum is installing a 3,750-ton press. They have chosen Granco Clark to supply the billet and die heating equipment. The billet furnace, Model 812-35-3, is capable of supplying 9,600 pounds per hour of 11-inch diameter billets. Granco Clark is supplying die ovens for the installation, as well as a replacement extrusion cut-off saw for the handling system.

Alumax Extrusions

Headquartered in Cressona, Pennsylvania, Alumax Extrusions recently purchased a Granco Clark double end flow aging oven. The oven is designed to operate with a 107,000-pound load of aluminum extrusions, excluding the weight of the racks and cars.

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required quantity and quality of extrusions at the desired speed. The drive to increase profits through mechanization and automation, evident in the report on the visits to European extrusion operations, requires reliable equipment and consistently high quality inputs of aluminum log and extrusion dies to be effective. Productivity and quality improve; conversion costs are reduced.

Perhaps as important as the direct benefits of each piece of equipment is the comprehensive advantage of an integrated system. The downtime of an extrusion press system consisting of log or billet racks, furnace, hot shear, press and runout, pullers, cooling table, stretcher, batching table and feed conveyors, saw table (with its feed conveyors), saw, and stackers will be dependent on the reliability of each of the component parts. While a reliability of 99% may have been acceptable when presses extruded onto a fixed runout table with little or no additional handling, it is totally unacceptable for a component in an integrated system. The reliability of the aluminum extrusion system is the product of the reliability of each of the component parts. If each of the sub-systems listed above were only 99% reliable, the system would be "down" 12% of the time!

Quality is the Means

To reduce conversion costs, quality — in its broadest sense — must be improved. The inputs of log and dies must meet performance specifications. Billets must be heated to correct temperatures in minimum time. The extrusion press and the extrusion system of runout, pullers, handling system and stretcher, saw table, finish cut saw, stackers, and aging ovens must operate properly with minimum down time. This is only possible with engineered extrusion systems operated by skilled people using inputs of consistently high quality. As quality is the means, reduced manufacturing lead time is the measure of performance. Reduced conversion costs and increased profits are the result.

Look for future articles in this series regarding ***Specification***, ***Evaluation***, ***Selection***, and ***Commissioning and Start-Up***.

New Equipment — United States from page 3

National Copper Products, Inc.

Located in Dowagiac, Michigan, National Copper Products has ordered a large copper billet heating furnace to increase their production of high quality copper tubing. The Granco Clark "Hot-Jet" furnace, Model 69-55-5, will heat 8-inch diameter copper billets at a rate of 60 per hour. The furnace features ceramic-type sight tubes that eliminate the troublesome water jacket design. Land optical pyrometers are used for precise temperature control, producing uniformly heated billets. Granco Clark also provided special charge and discharge billet handling equipment to interface with National Copper's existing billet transfer system.

Western Extrusions

Western Extrusions, located in Carrollton, Texas, recently upgraded an existing press line with a new Granco Clark automated handling system. The system features an extrusion stacker in addition to one-man stretching and sawing capabilities.

Werner Company

Werner Company of Franklin Park, Illinois, recently ordered a Granco Clark ECS-5408 extrusion cut-off saw. The saw will replace an older saw on an existing press line. With extra-wide capacity, the saw has a drop-down arbor design that enhances not only production throughput but also extrusion cut quality. Both the clamping height and saw stroke length are electronically controlled.

Extrusion Cut-Off Saw

National Northeast

National Northeast recently purchased a 3,000-ton press for their new facility in Pelham, New Hampshire. Granco Clark is providing a new "Hot-Jet" billet furnace along with a double end flow aging oven. Granco Clark is also in the process of upgrading three billet furnaces in two of the company's other plants.

GRANCO CLARK
Worldwide
Serving the information needs of the international aluminum extrusion community.

7298 N. Storey Road, Belding, MI 48809
Phone: (616) 794-2600
www.grancoclark.com
Fax: (616) 794-2878