

LIGHT METAL AGE

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50 MN Extrusion Lines**

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Two major extruders in Spain—INALSA Group and Extruidos del Aluminio S.A. (EXTRUAL)—are expanding their operations. The companies have each placed orders for 50 MN extrusion lines, which will enable them to grow their market presence both within the country and internationally.

Located in Zaragoza, INALSA Group has the longest history of any extruder in Spain. Established in 1957, the company has over 60 years of experience in the aluminum profile market. They currently have five lines in operation, ranging from 16 MN to 28 MN, with more than 140 tons of aluminum profiles produced daily. The company also has four production sites for fabrication, painting, anodizing, and machining. In 1981, INALSA began to export part of its production and now more than 70% of its production is distributed in 14 different countries. After very strong investments between 2000 and 2010, the company started to supply profiles to the automotive sector in 2015.

EXTRUAL is an extruder with more than 35 years of experience in national and international markets, mainly in Europe, America, Africa, and the Middle East. The company utilizes presses that are characterized by a high level of automation and productivity to produce profiles for both industrial applications and architectural solutions. The five presses currently in operation allow the manufacture of final products in a variety of section sizes, ranging from 0.9 kg to 26 kg per lineal meter and 14 m long finish cut profiles. In recent years, EXTRUAL has developed a plan to help the internationalization of its regional business by creating a production network to contribute to the increase and consolidation of its presence in the main international markets. The aim is to grow a more competitive business network while contributing to the economic growth of the Castilla-La Mancha region and Spain as a whole.

According to their history and philosophy throughout the years, both extruders have developed their own strategies to become important players serving markets such as industrial, automotive, trailers, and railway, among others. These are markets where the profile size is not the only determining factor, but there is also a focus on tight tolerances and thin walls.

INALSA and EXTRUAL both started the selection process for their new press lines more than three years ago, each keeping in mind that the new lines should provide

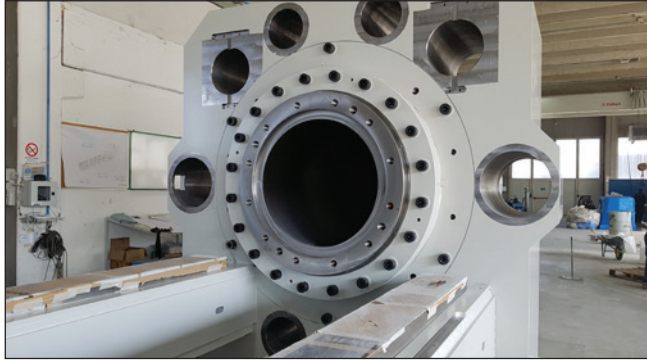


Figure 1. Back platen for one of the 50 MN presses under construction.



Figure 2. Front platen for one of the 50 MN presses.

precise features to match the needs of demanding and difficult markets including for large profiles. The choice of the press was a main challenge for both companies. The current market requires the production of large sections with extremely thin walls, which can provide strength while minimizing total weight, particularly for the transportation industry. Having a press with the most modern features in terms of force control, accurate alignment, correct billet containment, optimal container heating, and minimal platen deflection would be absolutely necessary to produce such difficult profiles.

Another important point, as confirmed by INALSA's technical group, was the need to choose a supplier that could guarantee a solid and resistant press design for a complete system to last through the years, especially considering the big impact on machines generated by the weight and residual stresses of the profiles. The extrusion system in a few words should be strong enough with all the features necessary to minimize the strains that generally contribute to a machine's short life.

During the consideration process, the technical staff of both INALSA and EXTRUAL also paid particular attention to cooling systems, pullers, cooling tables, and stretchers that were proposed by various suppliers. Also very important was the ability of the suppliers to provide viable solutions for the logistics of heavy materials and, in one case, the management of special finished cut profiles that can achieve a length of 21 m. In essence, they wanted systems that could offer flexibility, productivity, and safety.

Both companies attended several meetings with Italian extrusion equipment supplier, Turla, to discuss solutions and analyze press performance. They also made visits to production plants with Turla machinery. After careful consideration, both extruders separately selected Turla as the key supplier for their complete 50 MN, 12 inch extrusion press lines. "During the purchasing phase of an aluminum extrusion line for these profiles, we knew that the system itself must carry out the proper heating and cooling process to obtain the best results in mechanical properties, both in log heating before the press and delivery to the press," said J. Ramon Sanchez, general director of EXTRUAL.

Both extrusion systems will be designed and manufactured to include Turla STeP5 gas ovens, with a layout design that will allow for a future implementation of an

induction heater in case either company needs to meet special requests regarding billet taper. "We knew that Turla spent years developing the STeP5 log heater, which guarantees an accurate and controlled heating procedure thanks to several independent zones and the ability to distribute the needed heating steps," said Sanchez. "The heater provides optimal heating of the core of the billets without overheating the surface, so there are no undesired effects on finished profiles."

One fundamental point for INALSA was the performance of the profile quenching system. "For us, one of the most important factors was to have considerable cooling power associated with an extremely fine control of air and water spray," said INALSA staff. "As far as water spray cooling is concerned, this is the most important means of cooling. Success here is not linked only to the amount of water but the ability to manage the amount of water. We liked the Turla system, where pump flow is determined both by use of inverters on pumps and by the use of proportional valves and pressure transmitters near the nozzles. In our experience, this is definitely a plus in having an accurate and very responsive system."

The new presses will each be installed with Turla's Eco+Logic 2.0 system, which will be able to reduce energy consumption, an important concern for the extruders. "We really appreciated, during some of the plant visits, the ability to see a press run with extremely low energy consump-

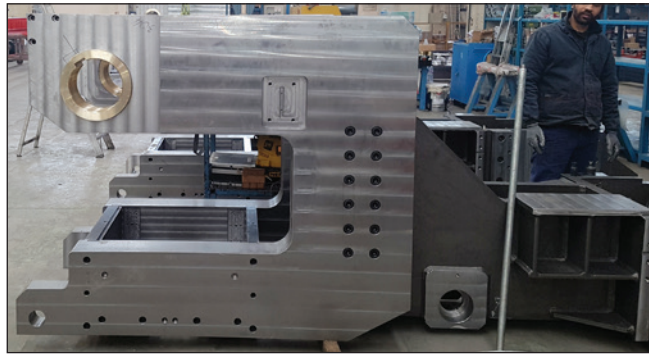


Figure 3. Component for a 250 tonne stretcher under construction.

tion using the Eco+Logic 2.0 system," said J. Ramon Sanchez. "Our production engineers immediately understood how the use of servomotors and inner gear pumps that permit profile production at a much lower cost per ton would give us a big cost advantage."

For EXTRUAL, it was also important to have flexibility in the production process. "Normally this market is not characterized by very long

production campaigns," explained J.H. Leal, factory manager for EXTRUAL. "Production of the final profile does not just go into the warehouse, but is mostly for made-to-order profiles. Machines must be designed to guarantee a fast tooling change that minimizes the downtime in case of frequent changes of production."

At the same time, INALSA's technical team focused on traceability within the system. They wanted to have the ability to understand the story of every billet since it guarantees full process control and provides a process record. "We liked the ability of Turla's recipe system to store the data for every machine so that data can be retrieved very easily and can be improved if necessary, thanks to the PLC control and the accuracy of control systems that permit the immediate implementation of the best working conditions," said INALSA's team.

The extrusion presses and handling lines for both plants are currently under construction at the Turla facility in Italy (Figures 1-3). The lines will be delivered and started up in summer 2019. ■