

PREACTOR CASE STUDY— INJECTION MOULDING



Tabone

Higher productivity and improved on-time deliveries – all achieved and still less working capital deployed

Tabone has been supplying door handles and plastic edge banding for the furniture industry since 1988. Its manufacturing plant is located in Caxias do Sul (Brazil), a region known for its strong engineering and furniture industries.

Tabone employs a vertical business structure that covers all aspects of the process starting from product concept and design through tooling



manufacture, injection moulding and extrusion. To do that, the company invests heavily in staff and equipment, such as injection moulding and extrusion machines, a Pro-UV glaze painting line and Hot Stamping edge banding application. The

company also offers the only 3D finishing process available in Latin America.

Always focused in growth, the people at Tabone have applied several new technologies in reaching markets such as cosmetics, home appliances and the rigorous automotive market.

The Challenge

In order to deal with such a broad variety of products, Tabone has a large and diversified manufacturing plant, with a wide range of distinct processes and resources, each one with its own specialities. The difficulties in scheduling production concerned not only this high variety which introduces sequence variable large setup times in the injection moulding area but also constraints such as operators and tool availability. Run times also had challenges associated with variable operation times according to the choice of resources. Sequence dependent setup times are linked to several attributes such as colour, thickness and tools.

Tabone's team had identified the need for a tool to assist in the production planning and scheduling activities. After reviewing available options in the market, they realised that an

Company and product

Tabone produces plastic parts for the furniture industry

Key challenges

- High variety which introduces sequence variable large setup times in the injection moulding area
- Constraints such as operators and tool availability
- Run time challenges associated with variable operation times according to the choice of resources

Key Benefits

- Global view of resources allowed users to take more informed decisions about overtime, people allocation and shift changes in advance.
- Better setup and staff requirements significantly improved delivery performance.
- The model looked not only at machine availability but also at setup and production teams.

System architecture

ERP Focco 3i

infinite capacity solution wouldn't work in such a complex environment, while a finite capacity solution should have enough functionalities so that it could be able to deal with every particularity in the processes. Thus, Tabone contacted ACCERA to get a better look at Preactor.

The Solution

The integration between the ERP Focco 3i and Preactor is done by the ACCERA CONNECT application, which provides communication for Preactor directly to the Oracle database in the ERP. Preactor works as a planning and scheduling specialized system so that no data is duplicated. The integration is a two way link, loading production orders, resources, routes, and even real time execution of production orders and updating the schedule in ERP.

For the Injection Moulding plant the model uses matrices for controlling setup times when operation attributes change. Besides that, secondary constraints were used for controlling the use of setup teams, tools (moulds and mould holders) and worker availability. Due to the impact of the setup team availability over the schedule, custom reports were built to organize the activities and ensure setups execution according to global priorities.

For the extruding plant the model focused on resource choice and operation times. A special rule was built to calculate the number of coils in each order. Linked to a resources quantity constraints database, rules automatically define the resources and the process times in each operation. As in the injection mould model, matrices help define setup times due to the sequence using as guidance attributes as colour, thickness and tools.

After specifications and development the project entered into an operational simulation period in which the key users generated several schedule scenarios to ensure the accuracy of the data and make small adjustments in the model. Once a satisfactory and accurate scheduling was obtained, the team proceeded with the solution's Start-Up, supplying the factory resources with work-to-lists.

Results

Once Tabone had started using Preactor, a more integrated, automated and optimized scheduling tool was accepted in the factory, resulting in a much more agility and synchronization. Not only was the time spent by programmers to generate a schedule reduced in half, but also the global view of resources allowed users to take more informed decisions about overtime, people allocation and shift changes in advance.

At the injection moulding plant the smart scheduling brought about by better setup and staff requirements significantly improved delivery performance. Recent indicators have shown a 63% reduction in delivery delays, even with a variable demand scenario, which translates directly into a better customer relationship.

Also the model which looked not only at machine availability but also at setup and production teams, secondary constraints such as cast and cast holders, cylinder, and thickness among others, less interruptions have occurred in the production flow, resulting into a 30% reduction in work in process. Setup optimization has also reduced material waste, improving waste indicators by 21%.

“After considering other APS Systems on the market, we chose Preactor because it was the only one that met our needs. We reduced inventory by more than 30% and delivery delays by 63%.

Vinícius Poletto, IT Manager, TABONE

Having seen the excellent results the company has started to expand the solution across other factory sectors. The next challenges will be to encompass other processes using optimization rules in order to increase flexibility and allow the company to enter a new market, and also use finite capacity scheduling over the tooling plant.

Key Benefit

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