VALLOUREC JECEABA'S APPLICATION EASILY DEVELOPED AND EXPANDED WITH ELIPSE FLEXCONTROL

Steel plant that manufactures Vallourec tubes in Jeceaba (MG) can edit the configuration of their machinery with platform developed by Elipse Software

Published on 07/02/2025

Needs

With approximately 17,000 employees worldwide, integrated plants in more than 20 countries, and an advanced research and development sector, Vallourec is among the world leaders in premium tube solutions. Established in October 2016 in Brazil, Vallourec Smart Tubular Solutions of Brazil has two plants in the country for the production of seamless steel pipes, one in Belo Horizonte in the district of Barreiro, and the other in Jeceaba, both in the state of Minas Gerais.

Vallourec plant in Jeceaba

Regarded as one of the most modern steel plants in the world, focused on producing seamless steel pipes exclusively for the oil and gas industry, Vallourec Jeceaba has opted for [Elipse FlexControl](#) to control its new tapping line for larger diameters. The company has been gradually replacing its legacy systems for [Elipse Software](#)'s platform, which expresses their absolute confidence in Elipse's technology.

The chosen solution was Elipse FlexControl because it offers greater flexibility, scalability, and advanced resources, which allows controlling the production more precisely and efficiently, in addition to facilitating the equipment's maintenance and monitoring. We should also emphasize the role played by [Simatec Automation Technology](#) as the solution provider that implemented our software in the application at Vallourec Jeceaba.

Solution

Vallourec Jeceaba's automation system has a robust architecture, designed to respond to high availability, with two redundant servers that ensure the operations' continuity. Communication with the Programmable Logic Controller (PLC) from Siemens 1500 family is efficient and reliable and allows controlling industrial processes with precision.
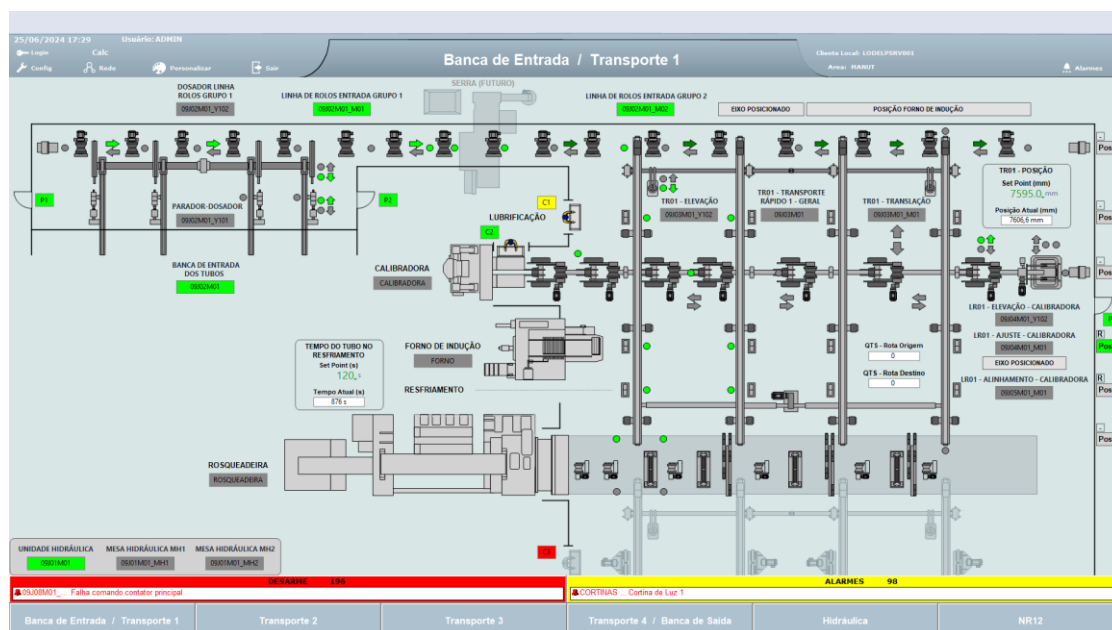
The whole system operates in a virtualized environment, which ensures its flexibility, scalability, and low maintenance. Clients with Raspberry Pi can access it remotely, which ensures its mobility and convenience. Finally, the system's interface provides complete control of the plant, both in manual and automatic modes, which ensures its adaptation to different production needs and higher operational efficiency.

With Elipse FlexControl, Vallourec can monitor the transportation and preparation of tubes at their steel plant in Jeceaba, located in the countryside of southeast Brazil. On the software application's start screen, the user can opt between three types of monitoring: conveying lines, the hydraulic system, or safety regulations. Alarms are displayed on the lower half of this and other screens in the application, and their severity is measured as yellow (medium) or red (high).
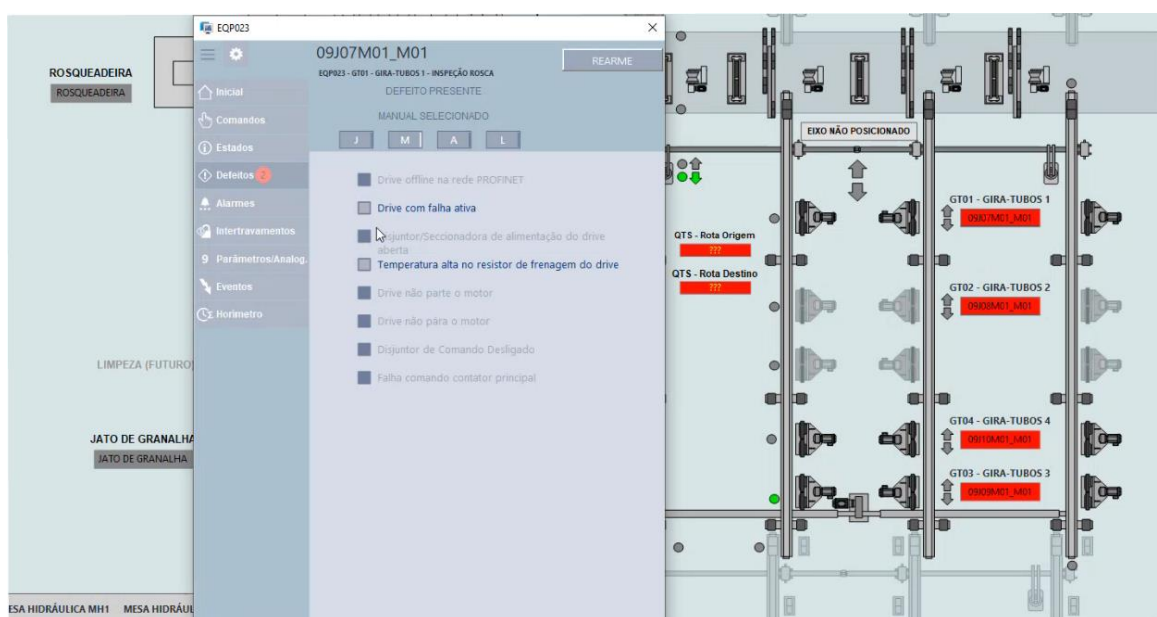
Elipse FlexControl application's start screen for Vallourec Jeceaba

On the conveying system's control screen, Elipse FlexControl provides the overview of all steps and processes for preparing the tubes: their input on the line, lubrication, calibration, thermal induction, cooling, tapping, inspection, shot blasting, phosphate conversion coating, and finally their output.

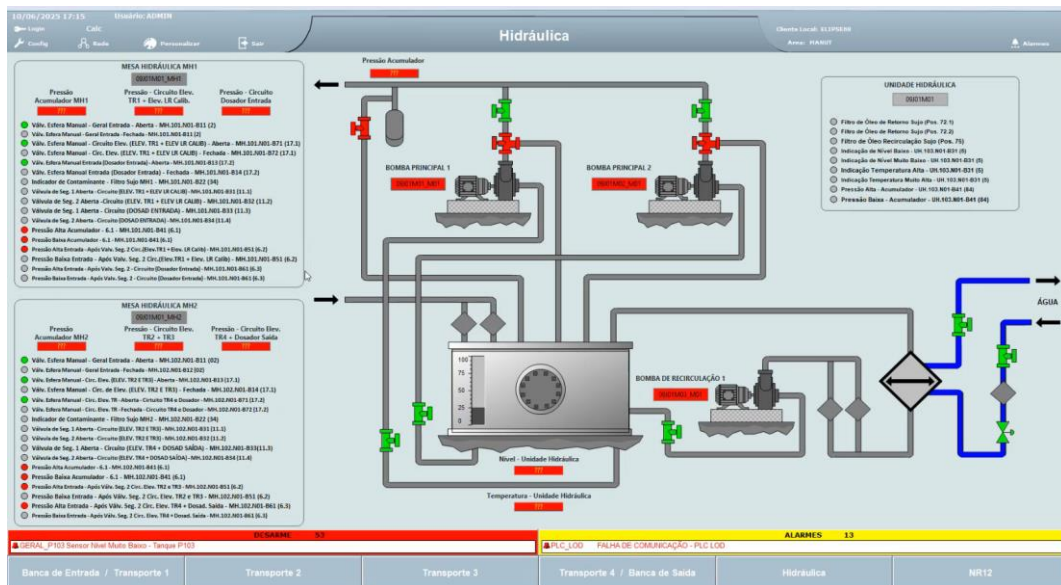**Controlling the first step on the conveying line and preparing the tubes**

With Elipse FlexControl, the operators can access all commands, statuses, defects, alarms, parameters/analogs, events, interlocks, and Hobbs meters of the equipment responsible for conveying and preparing tubes. This control allows the maintenance crew to diagnose and fix any issues faster and more efficiently.

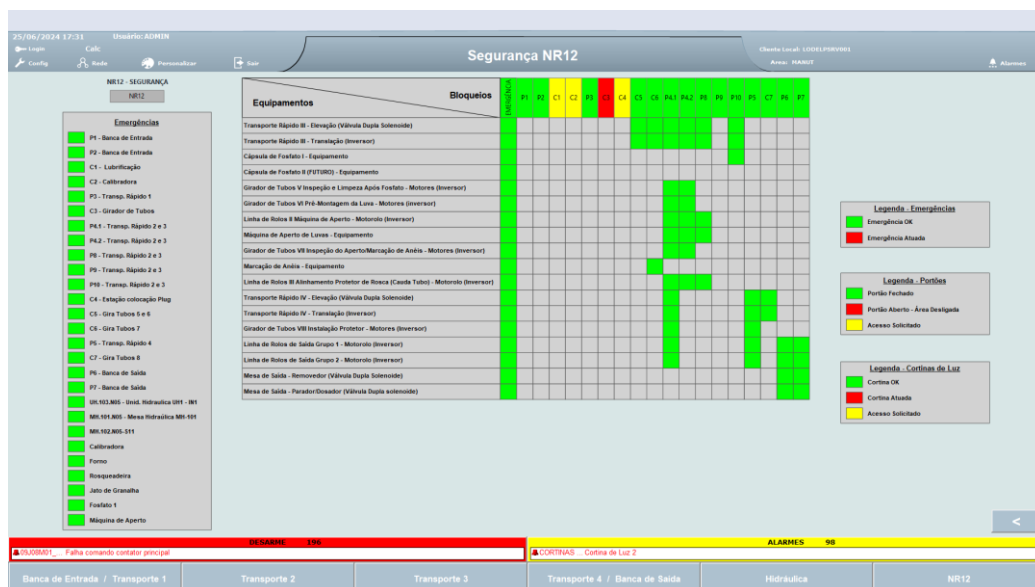**Controlling of the defects in equipment that facilitates the inspection**

The hydraulic system responsible for pumping oil to the machines in the conveying system is also supervised by Elipse FlexControl. With the software, it's possible to access the pumps' commands, parameters, analogs, and alarms. Operators can also monitor the pressure levels in the hydraulic machines, the oil levels in the reservoirs, and the statuses of valves (open/closed).

If any piece of the equipment, either on the conveying line or in the hydraulic system, is defective, the software will cause its name to pop on screen in red lights. By clicking on it, a new screen pops up with extra information about the issue, so that the maintenance crew can act on it more swiftly.
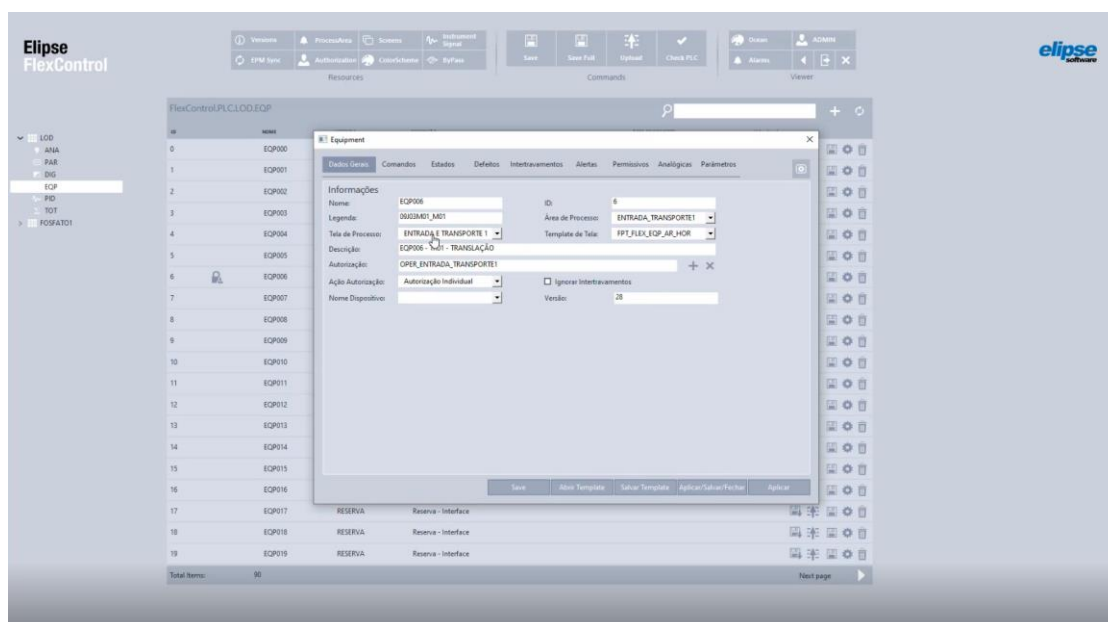
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Controlling the hydraulic system

Another system controlled by Elipse FlexControl is the safety regulations one. With it, Vallourec Jeceaba can monitor whether any door or light curtain has been trespassed. The software indicates the status as: green = door or curtain not trespassed; red = trespassed; yellow = access authorized by the company. Should any unauthorized access take place, Elipse FlexControl will automatically turn off the equipment as a precaution measure.

Controlling access to the plant's doors and curtains

Lastly, Elipse FlexControl allows editing of general information, commands, statuses, defects, interlocks, alerts, permissions, analogs, and parameters of the devices controlled by the plant's two PLCs (LOD and Phosphate 1). Therefore, Vallourec Jeceaba not only has access to a wide array of information about the plant's machinery but also is able to easily register new features to the application, such as adding an interlock to the machine responsible for traversing the tubes, for example.

Editing with Elipse FlexControl

Benefits

"Greater scalability," replied Cassiano Oliveira, Vallourec Jeceaba's Automation Analyst, when asked about the main advantages Elipse FlexControl has brought to the project. Because of it, they can easily develop and expand the application, thus optimizing the plant's control.

"The software by Elipse allows us to easily create and add new interlocks directly into the application at runtime. This, plus the more intuitive standard arrangement of the command windows, were the standout advantages provided by the new tool," said Oliveira.

Among the main benefits Elipse FlexControl has brought to Vallourec Jeceaba, we highlight the following:

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- **Greater scalability and flexibility in the application**: New features and information can be added and edited to the equipment controlled by the plant's PLCs.

- **Larger amount of information monitored by the software**: Troubleshooting is faster, more efficient.

- **Upgrade and low maintenance**: Using a state-of-the-art version ensures compatibility with new platforms, which simplifies equipment maintenance, lowers downtime, and optimizes resources.

- **Enhanced performance**: Elipse FlexControl has improved the system's performance, which not only makes operation and maintenance easier, but also ensures more efficient, streamlined processes.

- **Optimized production line**: Integrating all the benefits resulted in optimized productivity, less waste, and higher quality products.

In short, Elipse FlexControl has represented a significant technological advancement for Vallourec Jeceaba, propelling it to produce with more efficiency, sustainability, and competitiveness.

Datasheet

Client: Vallourec Smart Tubular Solutions of Brazil, Inc.

Solution provider: Simatec Automation Technology, Ltd.

Elipse product: Elipse FlexControl

Platform: Windows Server 2022 and Windows 10

Number of copies: 1

I/O points: 2,851

Driver: Siemens MProt (MPI/PPI/ISO-TCP) v4.0.29