



Marini Cybertronic

IMAGE SOURCE: Marini

Marini Cybertronic: The ultimate remote, digital plant management system for a new frontier in production optimisation

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In its constant quest for excellence, **Marini** continues to invest in research and development to enhance the usability and performance of its product portfolio, particularly when it comes to digitisation in the field of remote plant management.

Over the past few years, Marini has invested heavily in software development, providing clients with added operational advantages in terms of energy saving, the reduction of on-site complications, and a high Reclaimed Asphalt Pavement (RAP) rate during the production process.

With this in mind, to complement the solid features of the Marini Cybertronic remote digital plant management system, a new series of add-ons have been created in collaboration with the University of Bologna (Italy), to respond to the needs of our clients, while also guaranteeing an exceptional level of technical support, accurate analysis of heat exchange flows, and optimal energy efficiency.

As a result, Marini can now offer the following functions as an option: automatic control of the drying process, accurate management of the cold **RAP into the mixer** and a dynamic **RAP recipe feature**.

Automatic control of the **drying process** is vital to ensure perfect operation. This is why it is at the core of Marini Cybertronic's development strategy. In fact, the latest Marini Cybertronic enhancement is based on the physical model of the drying/filtering process, which provides: automatic feedback control of the outlet temperature of the material, even with hot or cold recycled materials; a self-commissioning process for continuous learning of the control parameters, which are calibrated according to the physical structure of the drum/filter system and the calculation of the heat exchange coefficient of the gas/material.



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Subsequently, by adjusting the burner power and the drum rotation speed to the ton/h production and the moisture of the incoming material, Marini Cybertronic helps keep stable the outlet temperature of the material and the inlet temperature of the fumes in the filter. Moreover, in the case of cold recycled materials, Marini Cybertronic also helps the operator maintain the mixer outlet temperature constant.

This is a significant milestone for the industry, especially when you consider the way asphalt plants work. In fact, Marini Cybertronic never lets the temperature of the fumes in the filter get too high or too low, minimising the risk of damage or packing of the bags. In turn, this helps optimise fuel consumption, reduces energy loss, and improves heat exchange efficiency, especially when the plant is working with a high percentage of RAP.

Correct management of the cold-**RAP into the mixer** is yet another key function to ensure perfect production output. In fact, Marini Cybertronic constantly recalculates, to determine or adjust, the speed of the weighing belt during the dosing stage. Furthermore the operator can manually modify the RAP speed introduction to "fine-tune" and adjust the speed according to the mixer measured depression values. This game-changing feature is crucial, especially when the plant is working with a high percentages of RAP into the mixer, avoiding the risk of human dosing errors, the primary cause of major system problems, such as explosions, damaged seals, etcetera.

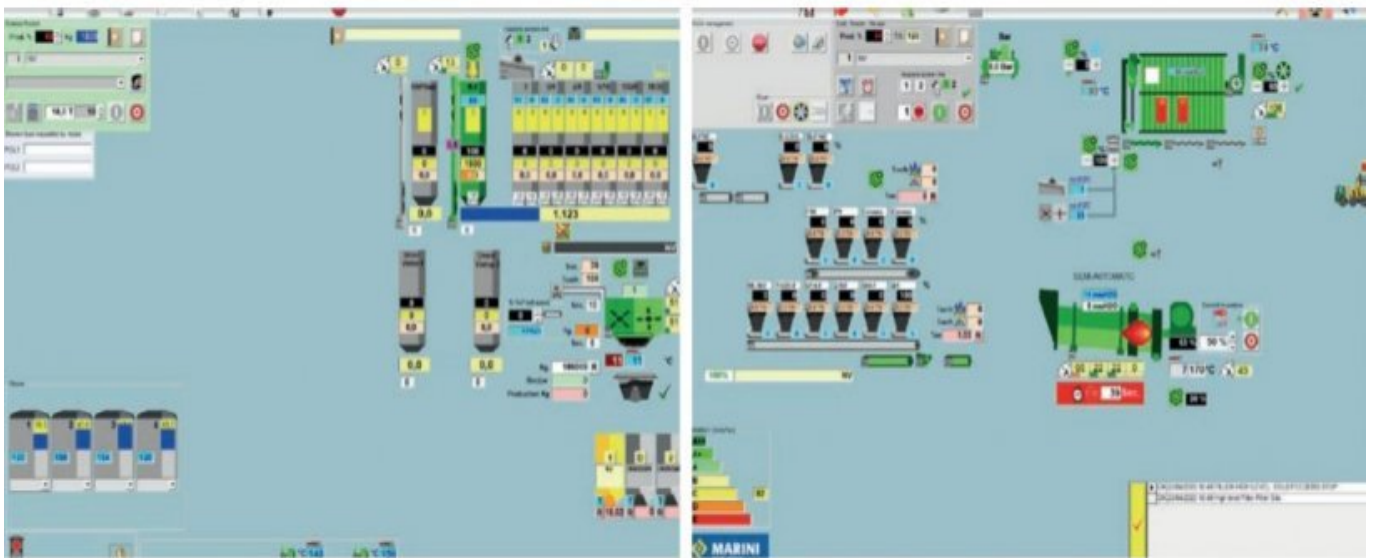
The **dynamic RAP recipe generator** is yet another exceptional Marini Cybertronic advancement. Although it is a little complex to execute during the preliminary studies and calibration of the jobsite, this feature is a real turning point for the client. In fact, by entering the grain size data of the aggregates/milled material and the type of bitumen and granulometric specifications of the asphalt to be produced, Marini Cybertronic dynamically adjusts the percentage of RAP material used in each recipe. Furthermore, Marini Cybertronic allows to check which aggregates and RAP the customer has in stock and the maximum quantity of RAP material they need to use to stay within the granulometric specification. The formula can also be modified in "real-time", adapting the plant to the required operating conditions, especially when using the cold RAP line into the mixer. Marini Cybertronic can also adjust the quantity of bitumen, filler and the various aggregates in the different hoppers under the screen, according to the quantity of the RAP material selected by the operator, guaranteeing the perfect quality of the end product.

In addition, Marini Cybertronic is an excellent support when the operator needs to manage multiple recipe changes with very different RAP percentages, as well as allowing the operator to better manage the temperature of the finished asphalt. In fact, the system allows the user to make gradual changes to both the RAP percentage, depending on the temperatures of the aggregates, and the end asphalt.

Last but not least, Marini Cybertronic is extremely helpful in certain environmental conditions, such as very hot and dry aggregates, or very cold and wet aggregates, for example, which often require the operator to increase or decrease the amount of RAP being used to keep the asphalt at the right temperature and respect the granulometric curve.

"Human-Digital interfaces, remote monitoring and operations management permeate every aspect of our lives and the business environment", said Luca Camprini, Senior Vice President Sales and Marketing Fayat Mixing Plants. "We firmly believe that technology is and will continue to be the ultimate enabler. This is why the constant advancement of our Marini Cybertronic plant management system is a top priority for the company, as we continue in our commitment to offering leading-edge production optimisation solutions to

increase our clients' return on investment".



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