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SPECIAL PRINT | CONCRETE PRODUCTS

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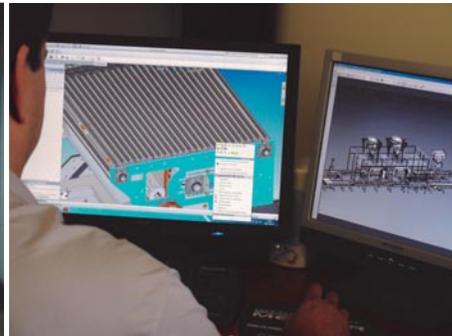
**SPECIAL PRINT
CPI 12/05**



AUTOMACAD

INC

INNOVATIVE **CONCRETE** SOLUTIONS



Modifying and improving production lines

Adding value to existing processes

Creating new concepts and equipment



Automacad Inc., Candiac (QC) J5R 6X1, Canada

New Wet Cast colouration robot substantially lowers cycle time and creates a safer work environment

The engineering team at Automacad Concrete has developed the Color-I, a new Wet Cast colouration solution. The colouration robot was first introduced to the industry in 2006 and since has been constantly reinvented and optimized to become the ultimate Wet Cast cost-saver. Working in collaboration with ABB Robotics allowed Automacad to create a robotic colour applicator of very high robotics and automation standards. Versatile in its application, the colouration robots permits producers to reach a very high level of productivity using any type of mould to produce any type of Wet Cast product.

The robot's "head" is comprised of up-to 8 spraying guns, each individually connected to its respective pressure pot which can each contain a different colour. The robot's unique design allows it to be as effective on a continuously moving conveyor as on a stop-and-go conveyor. Its RFID compatibility means that it is equipped with a code scanner enabling it to identify each individual mould design and apply the colouration pattern accordingly, such versatility makes the robot an efficient inventory management tool when working with complex production requirements such as having a large variety of mould designs, colouration patterns and different types of Wet Cast products.

The production process

The empty moulds go through the colouration process immediately prior to the filling process. The Color-I sprays the liquid paint

according to a set pattern into the mould. Executing at high speed and precision, the robot can paint as much as 9 meters per second. Once the moulds are painted, they go to the filling station where they are filled with concrete and vibrated. The vibration caused by the vibration tables forces the paint to bind with the concrete which guarantees a high quality colour finish that will not fade with time.

Taking Wet Cast producers to new heights, some of the most dominant industry leaders who own the Color-I colouration robot, are now reaching a cycle time as low as 1 square meter per mould every 10 seconds which translates to an average production rate of 360 square meters (3,875 square feet) per hour. All while being able to produce over a dozen of different product types simultaneously.

The robot is designed to accommodate an unlimited number of individual patterns, permits producers to keep their competitive

edge and stand out amid the competition by producing products unique in design, colour and quality.

The Color-I allows producers to substantially reduce their overall production costs by creating a safer work environment and minimizing injury and training-related downtime. With the colouration robot, producers only require a single person to occasionally monitor the entire colouration process while still being able to work on other production stations. Moreover, the Color-I completely eliminates the need for otherwise time-consuming processes such as colouration mix preparation and labour training in colour application techniques.

The robot, as its nature suggests, works at a very high level of accuracy and execution precision, therefore, substantially prolonging the moulds' lifetime by keeping them clean time after time as well as allowing producers to significantly reduce their paint costs by minimizing paint wastage.

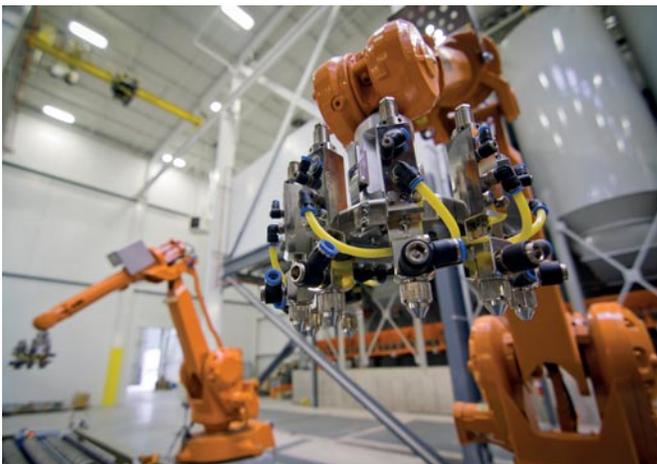


Fig. 1: Two Automacad Color-I colour application robots have the combined capacity to deliver up-to 16 colours for unlimited colouration patterns and non-repetitive effects. The robots apply colour directly inside the mould cavity, just prior to the filling process.



Fig. 2: Along with the robots, Automacad delivers a custom risk assessment solution which includes safety sensors and fences to guarantee your employees' safety around the robots.

THE **BEST** WET CAST
COLOUR APPLICATOR
IN THE INDUSTRY!



HIGHEST QUALITY,
LOWEST CYCLE-TIME
AND A PERFECTLY **NATURAL** FINISH

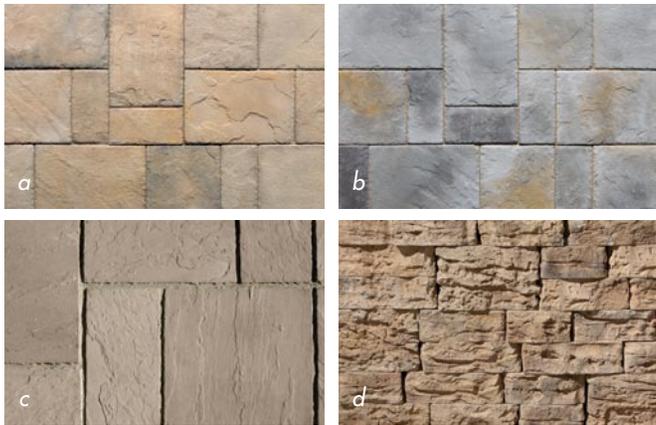


Fig. 3a,b,c,d: Examples of product finishes obtained with the Color-I colouration robot.

Going even a step further in saving producers money, the robot's unmatched functionality gives it the ability to spray diagonally onto the moulds' inside walls, what this means is that producers can program any one of the spray guns to function as a release agent applicator. In other words, it means combining both processes onto a single piece of equipment and completely eliminating the need to otherwise require a separate release agent application station, whether manual or automatic.

User friendly software, no programmer needed

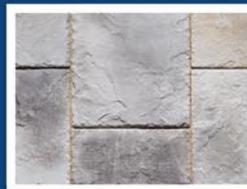
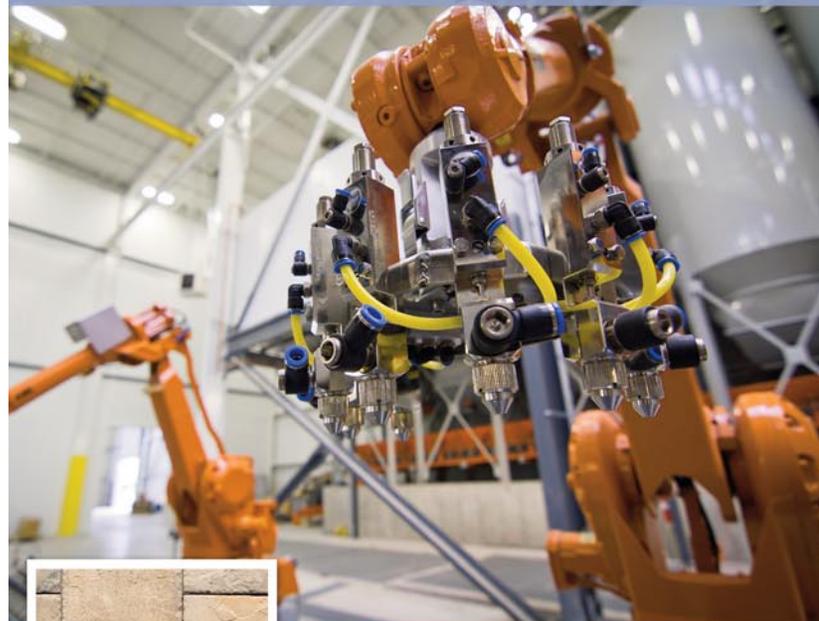
Automacad's custom software is designed to be simple to use, giving the producer the possibility to constantly innovate and optimize their mould colouration patterns. Its simplicity means that following an initial brief training by Automacad, the producer does not require a specialized programmer to control the robot.

The software

The first step when using the software is to open the template which in this case corresponds to a specific mould design. Then, with an optimized painting tool, the user begins creating the colouration pattern by simply drawing the pattern on the surface of the mould. (fig. 4a) Once saved, a new window opens where the user is able to choose the appropriate colour. (fig. 4b) Then, the software renders the pattern and runs a 3D simulation. (fig. 4c,d) At this step, the user is able to optimize and validate the created pattern according to the robot's movement and the desired cycle time. The software then generates a robotic code which, with a simple drag-and-drop function, is copied to the robot through an FTP transfer. Finally, with a simple touch of a button, the user is able to update the robot's memory and register the new or the edited pattern in its execution repertoire.

Consistency of execution

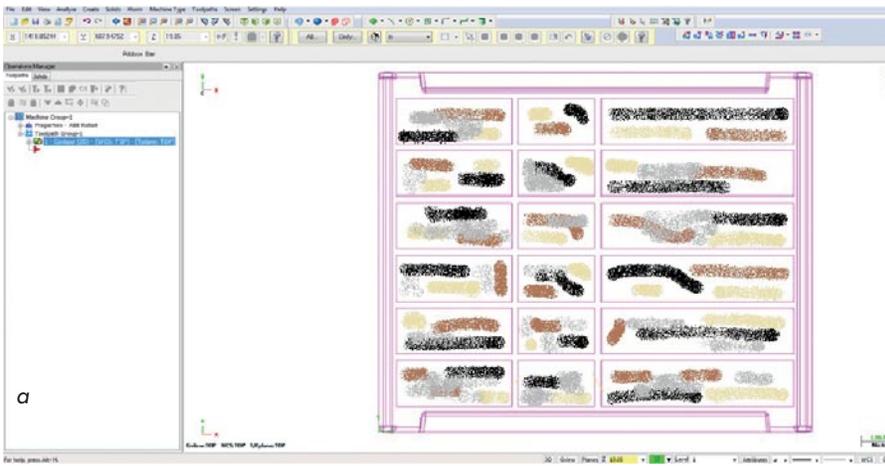
The complete automation of the colouration process allows Wet Cast concrete producers to obtain a consistent product of a very high quality and a perfectly natural finish. By eliminating human error from the equation, producers are guaranteed a consistence of execution otherwise unattainable with a manual colouration process.



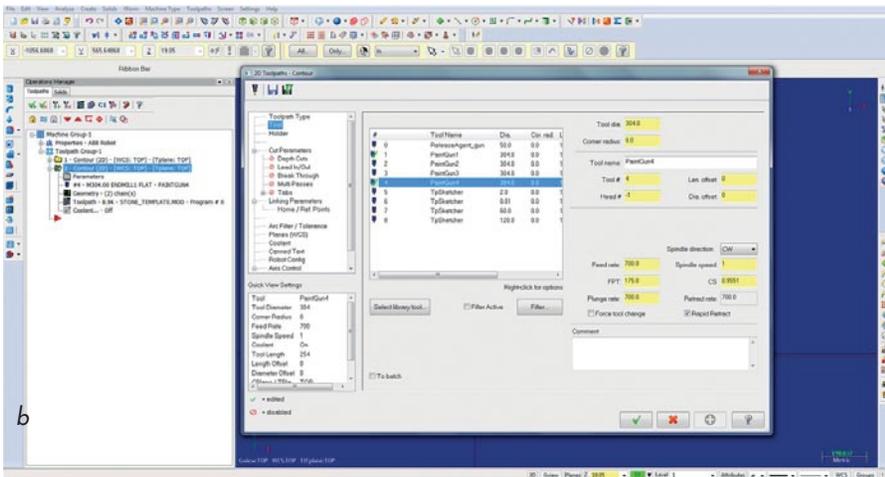
Keep your competitive edge and stand out amid the competition with a versatile system able to meet any production requirement.

- Random patterns
- Up to 8 colours simultaneously
- Use for Release Agent application
- Any mould design and size
- High-speed application
- RFID compatible
- User-friendly software
- No programmer needed

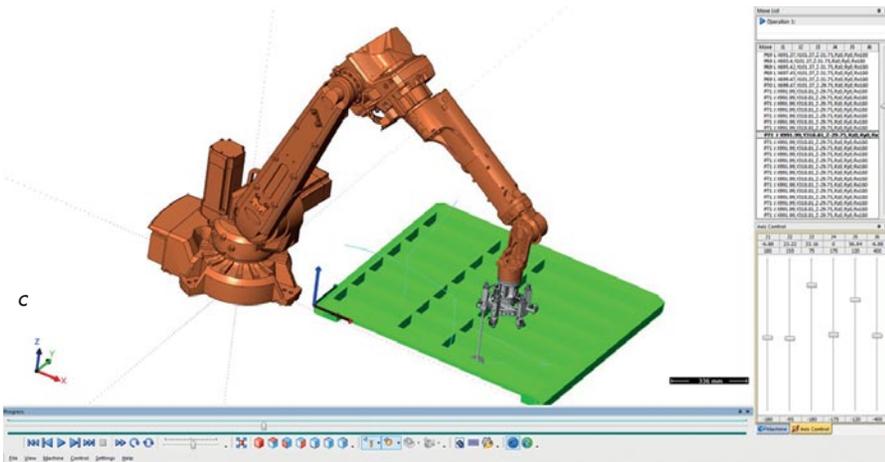
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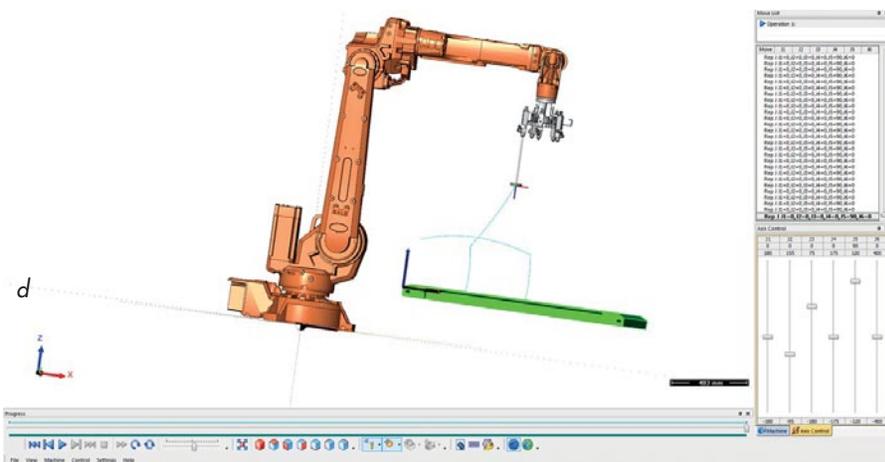
a



b



c



d

The ultimate colouration tool

Actively contributing to the continuous advancements of the industry, the Color-I is one of the ultimate Wet Cast colouration tools. Incorporating the Color-I colouration robot into an existing Wet Cast production process is guaranteed to increase profitability by decreasing production costs and substantially reducing the production cycle time.

The right colour for the right applicator

A highly sophisticated robotic system such as the Color-I is greatly complemented by an equally highly sophisticated colouring product. Working in collaboration with Automacac, the R&D Group at Solomon Colors developed a new liquid colour product line specifically for the Color-I. This new product is a modified version of the Solomon Colors' very well established existing liquid colour line, the Color Flo®. By incorporating a highly functional, modified co-polymer in the liquid colour, the Solomon Colors R&D Group was able to design a colorant that will not only paint the surface of the concrete products, but will embed itself in the matrix of the concrete. This process is more than a simple physical mixing of the colour and concrete; the interaction between the concrete and the polymer will lead to the creation of a network of very strong physical bonds that guarantees an extended durability and increased weatherability of the accent colouring. Solomon's Color Flo® and Color Flo AC® liquid colours are available in a multitude of colour shades that will allow the Color-I system to provide a customized unique colouring look of any Wet Cast product.

FURTHER INFORMATION



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Automacac's custom software is designed to be simple to use