

# Automating efficiency



Gone are the days of manual production of concrete. Contractors and RMC companies are switching to automated batching plants to save cost and time

BY IMRAN MIRZA

**W**ith increasing competition, rising material and labour costs, and tighter deadlines for completion of projects, contractors are always on the lookout for equipment that will save them both time and money. Unlike the manufacturing industry, construction sector has been a slow mover when it comes to adoption of automation

in operations. However, the current market conditions are compelling contractors to find ways and means to lower their construction costs, minimise wastage of raw material and reduce their dependency on labour.

Although automation of construction equipment is not a recent phenomenon, contractors in India, especially small-time construction firms, have traditionally relied on the cheap labour that is readily available across the

country. But, with rising labour costs, things are gradually changing.

Automated batching plants are an excellent example of this trend. Manually-operated batching plants were the norm in India until recently. Only a few, mid- to large-sized contractors invested in automated batching plants. Of late, things have changed and many small and mid-sized contractors are considering buying such equipment due to their benefits.



Godrej Construction uses automated batching plants extensively for its operations.

## ADVANTAGES OF AUTOMATED BATCHING PLANTS

1. With no need for manual intervention, automated batching operation ensures superior accuracy
2. Weigh batching accuracy of all aggregates and sand, thereby ensuring right proportion of mix and uniform concrete quality
3. Cycle time is maintained as per plant standards, thereby guaranteeing productivity
4. Automated operation ensures less wear and tear of critical components since the plant is run on optimum mode
5. Eliminates the possibility of overloading of mixer
6. Detailed batch reports and mix recipes
7. Better control on inventory of raw materials due to availability of real-time records
8. Provides flexibility of all present day RMC operations

“Automatic batching plants are equipped with customised micro-controller or PLC based control systems, which facilitate better performance and higher efficiency of operation,” says K Vijay, managing director at Ajax Fiori.

“Automated batching plants offer sophisticated batching software programs which raise the efficiency of the equipment – faster batching, handling of multiple types of raw materials for different types of concrete, very tight batching tolerances, negligible human error, and data retrieval from the system gives an opportunity to analyse different trends on raw material, concrete produced and equipment efficiency,” explains Maneck Engineer, senior VP of Godrej Construction. Godrej uses batching plants from Schwing Stetter, SIMEM and ORU for its RMC business.

There are several other advantages of using automated batching plants – time and material savings being the most prominent. Automated batching

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Maneck Engineer, senior VP, Godrej Construction

plants are run with a fewer number of operators or technicians. This implies direct cost savings for the contractors or RMC companies. They can work on a much leaner setup.

“Generally, these plants are run by software capable of controlling the equipment to such accuracy that the tolerances rarely go above 1 per cent than the target values,” adds Engineer.

Capability to handle multiple mix recipes, multiple raw material combinations and provisions like loading materials for subsequent batch when current batch is mixing in the mixer,

add up to the faster batching of concrete. “The mix design recipes can be stored in the batching plant’s control system, which can ensure consistency in subsequent batches and offer a password protection to eliminate the possibility of tampering. The system can also provide records of concrete produced at a later date. All these quality control measures take the customer confidence levels to a different high,” elaborates Engineer.

“Automatic operation ensures not only productivity but also optimum usage of the plant. Hence, for a given

“ Automatic operation ensures not only productivity but also optimum usage of the plant. There's less wear and tear, and consumption of power.”

Kumar Mehta, director, Jaypee India



Ajax Fiori's dragline batching plant: DLP 30

output, the cost savings are on account of wear and tear of all relevant components and the consumption of power,” says Kumar Mehta, director, Jaypee India.

“In comparison to conventional batching plants, automated batching plants bring down the costs by nearly 30 per cent and increase the production output by about 50 per cent,” adds Mehta.

Automation also helps in adhering to strict production schedules. “Since the entire batching and mixing process is automatic, the rated cycle time of the plant is achieved, thereby production time is consistently maintained,” highlights Vijay.

As these machines automate the entire production process, there is hardly any requirement for manual

labour in the plant. However, trained operators are needed to use and control the batching plant optimally. Training the operators is necessary as these machines have advanced control mechanisms. Realising this, many manufacturers offer free training at their plant or even at the client's location after plant commissioning and at regular intervals. “These trainings cover all operation and maintenance aspects of the plant,” informs

## BATCHING ON WHEELS

In metros, where space is a major issue, setting up a batching plant is a challenge. The On-Wheels concept has been introduced by Schwing Stetter India, keeping in mind the easy transportability of batching plants between sites. This design is available in the 18 m<sup>3</sup> segment, which is also known as the 'CP18 on Wheels' which can be a trailer or a truck-mounted batching plant. It's also quite handy at remote project sites.



CP18 on wheels by Schwing Stetter



Radius lift arm batching plants from Ajax Fiori incorporate the unique 'swinging radius lift arm' technology, hitherto not seen in the Indian market.

The Radius lift arm plant allows self-loading of aggregates and sand with minimum wastage, thanks to the two radius lift arms, swinging almost 180 degrees. The design eliminates the need for bins / partitions like traditional systems as the radius lift arms pick up material from the ground. Operators can use larger active larger stock piles of aggregates compared to bin or scraper type plants, thereby eliminating the need for a dedicated loader. Compact layout of the plant ensures that there's minimum space requirement at the site. Minimal concrete foundation is required for erection. Modular design of the plant ensures ease in transportation and a fast dismantling and set-up time.

Vijay of Ajax Fiori. "At the time of installation, the vendor organises for a training session. Subsequently trained and experienced staff train the new joiners," says Engineer.

Contractors who have recently invested in a manual batching plant can convert it into an automated batching plant through retrofitting. "Any of our plants can be retrofitted to make them automatic. We do have the technical expertise to support our customers if they want to automate

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K Vijay, managing director, Ajax Fiori

their plants, says Vijay of Ajax Fiori. Maintaining these machines is also not an issue.

Many of these plants are of standard design and hence getting spares or

service support is not a big issue with companies having dedicated service staff," asserts Engineer.

The software of automated batching plants can also be integrated seamlessly with the company's ERP system. This particular feature makes it easy for contractors and RMC companies to streamline their production process by providing valuable information and insights to the management in real-time.

Management can have up-to-the-minute information on the inventory, cost, production time and other critical information that can help them take the right decisions.

Batching plant manufacturers are also working on offering more mobility to operators and management by providing live data transfer to mobile devices. This would enable them to view all the details of the batching plant from anywhere in the world, at any point of time. ■



MB18 automatic batching plant by Jaypee