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Increasing the utilization of the existing fleet by increasing plant speed

The first question a ready mix producer asks a manufacturer when buying a plant is "How many yards an hour does it produce." In recent years there were several things that brought about the need for ready mix producers to put more cubic yards per hour to the jobsite; things like laser screeds, more and larger pumps. All of this required ready mix producers to produce more yards per hour, and get it to the jobsite.

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Two Florida ready mix producers realized that the answer to increased productivity was not always to add more and more very expensive trucks to the fleet. One answer was to increase the utilization of the existing fleet by increasing plant speed. Plants as recently as 20 years ago would require from 3 to 6, or even 7, minutes to weigh and load a ten cubic yard batch. Large pours were required by multiple plants to satisfy the contractor's needs. Sometimes more than one plant was not an option. Queuing times were costing time and money, and in some cases, business volume.

These two Florida producers partnered with MERTS, LLC. to help design and build transit mix plants that would weigh and load a truck in as little as 2 minutes. Both first efforts were designed around standard low profile plants, and were highly successful. The two-minute barrier was broken on the first effort; using rear discharge trucks. These plants utilized wide, high-speed truck charging conveyors, along with specially designed discharge hoods, to achieve the necessary velocity and direction required to get the material into the truck mixer as fast as humanly possible. Weighing the water also helped speed the operation.

The first of these plants built in Florida was able to weigh and load ten cubic yards in under two minutes. The second plant built in Florida was even faster. On a one-hour timed speed trial, this plant sent 20 ten-yard loads out the gate in 40 minutes, for a cyclic rate of 300 cubic yards per hour. With this increased speed and productivity, it allowed the producer to get more concrete out the gate in less time than had ever been possible with a dry batch transit mix plant. Prior to that time, a 200 yard per hour plant was almost exclusively a central mix plant. This essentially doubled the cost of the plant, as well as required much more maintenance, repair and clean-up costs.

Parallel to this development, MERTS developed the EZ line of modular plants; so named for the ease of erection. The EZ plant is a one silo plant, and can be delivered in as few as three large assemblies, allowing a full sized ready mix plant to be erected in one day's time. The Big EZ is a two silo plant, allowing for up to four cements by utilizing double walled two compartment silos. All of these plants are factory pre-wired and pre-plumbed; cutting the lag time between delivery and operation, in some cases, by weeks.

The next innovation was to incorporate the new high speed technology into the Big EZ plant, resulting in what was called the Maximum Output Big EZ, or M.O. BIG EZ plant; one of the World's Fastest Transit Mix Plants. The first of these plants was built in Florida in 2001, and in 2005 it had produced over one million cubic yards of concrete. No problems of excessive wear have been reported. This is due, in large part, to the sloped surfaces of the aggregate bin, and to the fact that both sides of the vertical compartment dividing partitions were lined with ¼" AR400 plate. Also, the aggregate bin is always kept as full as possible. There have been over 30 of these M.O. BIG EZ plants built to date. In 2011, one M.O. BIG EZ plant in North Carolina averaged over 243 cubic yards per hour in a 4.75-hour time span. They even used 18 front discharge trucks, which requires more time to

load than rear discharge trucks. These results also included the time that the plant sat idle; waiting for trucks to return to be reloaded and sent back to the jobsite. We have had more than one producer with a small fleet (12 to 15 trucks) tell us that operating this plant was like adding 3 trucks to the fleet. This was better utilization of the existing fleet.

In addition to the speed of the M.O. BIG EZ, there are safety features built into the design of all the EZ line plants. Every part of the plant that requires maintenance or repair is accessible from either a well-guarded walkway or work platform. A cantilevered platform, where trucks back under, can be provided for a central dust collection system. The entire plant is prewired to NEC specifications in rigid conduit at the factory, eliminating the need to spend weeks to wire the plant in the field. A factory representative can be dispatched to the plant site to make the few necessary field connections. All the customer has to do is bring power, water, and control wiring to the plant's main panel.

And then there is the erection factor. With standard, low-profile or "stick built" plants, the erection time can be measured in weeks on occasion. The EZ, Big EZ, and the M.O. BIG EZ have all been erected in one day's time. The shortened erection time of this modular design can save significant money for the customer in erection costs. Not to mention the plant's ability to operate much sooner; bringing in revenue more quickly.

FURTHER INFORMATION

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