

HAHN

READY MIX

Plant Types, and What that Means for your Concrete

Technical Bulletin #36 - December 2024



**There are essentially four types of Concrete Production facilities.
We'll talk about each one and how the concrete they make can differ.**

Dry Batch Ready Mix Plant



By far the most common type of concrete production facility is a dry-batch ready-mix plant. Also called a Transit Mix Plant, these plants all work by putting all the constituent concrete materials into a ready-mix truck, and allowing the truck to do the mixing of the materials. Dry batch plants can be portable or stationary, gravity-fed or belt-fed, of various sizes of storage and of various speeds. A dry-batch plant relies on each driver to make sure that the concrete has been fully mixed in the truck and water added to achieve the desired slump. Training of driver personnel is critical to ensure consistent concrete. Additionally, concrete batched too wet from a dry-batch plant often suffers from the presence of "doughballs", which are balls of

unmixed dry cement. Concrete batched too dry or with the wrong sequence of materials can result in a "head-pack" where the front yard or so in the mixer has no water.

Dry-batch plants allow for more effective use of specialty aggregates and some specialty mixes, as there are less places in the batching process where there could be contamination. Exposed aggregate mixes, shotcrete, and auger cast grouts tend to be easier to produce from a dry batch plant. Some types of concrete, such as roller compacted concrete (RCC), are nearly impossible to batch out of a dry batch plant without some kind of mixer attachment. In relation to a central mix plant, concrete from a dry batch plant will often set a little slower, which can be a benefit in some situations where extra working time is needed, or a disadvantage when trying to get on with finishing operations.

At Hahn Ready Mix, our Aledo, Wilton, West Liberty, Cambridge, Leclaire, both Muscatine plants and both Eldridge Plants are dry batch facilities.

Central Mix Plant



A less common type of concrete production facility is the central mix plant, also called a "wet-batch" plant. These types of plants work by putting all of the constituent materials of the concrete mix in a mixer attached to the plant and then dumping the fully mixed concrete into a truck for delivery. The mixer can be a tilt mixer (seen above), a horizontal reverse mixer, a twin shaft mixer with a bottom hatch, and probably many more designs. Similar to dry-batch plants, wet batch plants can be portable or stationary, of various storage capacity, and various speeds. However, they tend to be faster by nature of the ability to have multiple loads in process at once, and if one is going to make the extra investment in a central mix plant, high production capability is typically needed to see an ROI. Some central mix plants can produce concrete at speeds over 500 cubic yards/hour.

The major advantages of central mix plants are that the concrete enters the delivery vehicle fully mixed, and thus consistency is the responsibility of the batch person. Central mix plants eliminate the concern for doughballs and headpicks, and the concrete can be delivered in various vehicles including ready mix trucks, agitating trucks, dump trucks or any other kind of mobile containment unit. The ability to deliver in dump trucks is a major benefit to high speed slip form paving operations. Due to the violence of the mixing action in the central mixer, concrete from a central mix plant will need slightly less water to achieve the same slump and will set slightly quicker than dry batch plants, giving the customer higher quality concrete and potential labor savings.

Unfortunately, central mix plants are significantly more expensive to set up and maintain, and are more complex which means there is a higher likelihood of breakdowns. Central mix plants are also not ideal for some types of concrete mixes such as auger cast grouts, exposed specialty aggregate mixes and shotcrete. Cooling concrete by traditional methods can also be a challenge, as one cannot simply replace all the mixing water with ice, as the concrete has to be plastic enough to discharge from the mixer. Small mixers on a jobsite would technically be rudimentary central mixers even if all the materials are added by hand to the mixer.

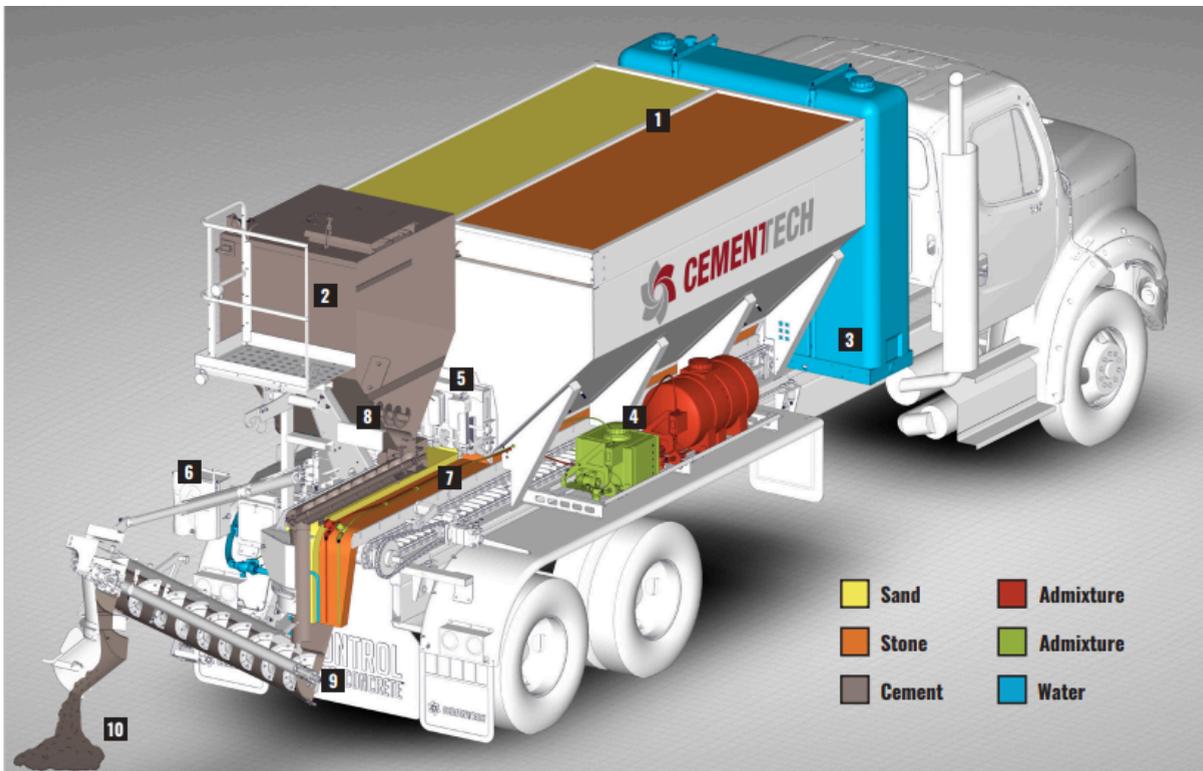
At Hahn Ready Mix, our West Davenport, Davenport River, Moline, East Moline and Geneseo plants are all central mix.



Continuous Mixing Plant

Another type of concrete production facility is a continuous mixer plant, also known as a pugmill. This type of plant uses augers and a constant stream of materials to continuously mix concrete or other materials. This type of plant is commonly used for roller compacted concrete, soil stabilization, and asphalt operations. Conventional concrete cannot really be made with these types of plants, and they don't make a "batch" that can be documented for the exact makeup of the materials in each load. These type of plants can mix materials at very high speeds, which is beneficial for many paving applications.

Volumetric Mobile Mixers



The final type of concrete production facility is the volumetric mobile mixer. Similar to the pugmill, the mobile mixer uses an auger at the back of the truck to mix the materials which are continuously fed into the auger. Mobile mixers are useful for producing fresh concrete right at the jobsite, and also for getting small precise amounts of concrete as needed. For example, if a contractor needed a wheelbarrow of concrete at 10 different places throughout a day, a mobile plant could produce one wheelbarrow at each spot without waste or the concrete getting old. They are also the only method of producing certain types of concrete such as latex overlay concrete. Mobile mixers are of course limited to the amount of raw materials they can carry to the site, and are also more prone to false-sets and flash setting out of the auger.

[Click for Previous Tech Bulletins](#)

Hahn Ready Mix

3636 West River Drive, Davenport, IA 52802

This email was sent to {{contact.EMAIL}}

Click Unsubscribe below if you no longer wish to receive Tech Bulletins

[View in browser](#) | [Unsubscribe](#)

