



Dry-Mix Gun with Mobile Volumetric Batching Equipment

By Michael Reeves

Within any construction site, there are hazards that need to be recognized to produce a safe work environment. Working with dry-mix shotcrete is no different. There are a multitude of activities going on at one time that not only the person working directly with the equipment needs to know, but everyone working on the crew or around the site should also know. Here are a few things to look out for and help make for a safer and more productive work area.

BE SEEN. For starters, when working around heavy, moving equipment, you always want to be seen. Wearing a bright-colored safety vest or bright clothing will help you stand out to truck drivers and operators. This is important, especially with dry-mix volumetric batch trucks because they discharge from the rear of the truck. Each truck needs to be backed into the work area and up to the shotcrete gun. It can be difficult enough backing into a tight access in a large truck, so letting the driver know you are there and helping guide him in will only help.

DON'T GET CAUGHT. While on the topic of clothing, wearing form-fitting shirts and gloves is also important and easily overlooked. There are many moving parts on each of these volumetric batching trucks, between the sprockets and chain that connect to the sand and cement augers, the material mixing auger itself, and the rotating bowl agitator on the dry-mix shotcrete gun. As a gunman, you work close to these moving parts and you want to make sure no loose or torn clothing can get caught in any of these components.

USE YOUR SENSES. Like any construction site, you need to be aware of dust, dirt, and falling objects. The gunman should wear eye protection, ear protection, respirators, and hard hats. When operating a dry-mix batch truck, there are vibrators on the truck body to keep the cement and aggregate discharging into the auger. The dry-mix gun can also produce a lot of noise. As a result, this environment can get very loud for the gunman, so a quality set of ear protection is a good item to have that many new people often overlook.



Example of dry-mix crew working safely in an active environment | Crew: Revolution Gunite | Photo: Ryan Oakes

PROPER SAFETY COVERS. On the back of a dry-mix batch truck, there is a chain and two sprockets that should have a safety cover over them whenever the truck is running. One sprocket is attached to the sand auger and the other to the cement auger. Both augers are located inside the housing. However, the sprockets need to be accessible for maintenance and adjusting the cement ratio. The main sand auger runs off a hydraulic motor and a chain then connects to the cement auger. These hydraulic motors and augers are extremely strong and will not stop if something (such as fingers, loose clothing, or tools) get stuck in them.

HYDRAULIC ARMS ARE A MUST. This caution is more applicable to older-style mobile batching rigs, but is still a very important upgrade. Dry-mix batch trucks have a mixing auger on the back of the truck that is hinged at the bottom of the truck and adjusted downward by what should be a hydraulic arm connected from the top of the mixing auger to the back of the truck. Older-style trucks used a cable winch system to lower the auger. A cable winch system doesn't have the inherent stiffness of a hydraulic arm and it becomes much easier to allow the heavy mixing auger to swing loose and out of control. This can be a very dangerous hazard to crew around the auger discharge.

CONNECT YOUR HOSE. Dry-mix shotcrete requires a large air compressor to convey material to the nozzle. The air hose that is connected from the air compressor to the shotcrete gun is under the maximum pressure the compressor produces. You must have a whip check to connect the air hose to the dry-mix gun. Without this safety device, an air hose that accidentally becomes disconnected could whip around wildly, and potentially strike and injure someone.

MAINTAIN IT. Unfortunately, there is no way to see into the future. Things always seem to go wrong when you least expect it, so it is best to be prepared. Preventative maintenance is a must with any heavy equipment, including your shotcrete equipment. Check all your equipment daily. There are a lot of moving parts and catching something that is worn out before it breaks is the best way to create a safe and efficient work area.



Michael Reeves is the Vice President of GSI Pool Finishes and Gunite Specialists, serving the industry in Pennsylvania and surrounding states. He grew up in the profession and is a second-generation guniter. Reeves is a member of ASA, ACI, NESPA, and APSP.