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Above. The drive chain rotates the glass batcher on external trunnion rings located at both ends.

Right. The 50-ft.<sup>3</sup>-capacity rotary glass batcher (main body behind drive chain) at the Elmira, NY, Anchor Glass factory, receives ingredients from the hopper chute above.



**FOR ANCHOR GLASS** Container Corp., a rotary glass batcher, brought on line in 1980, still produces more than a million glass containers daily. In more than 38 years, that adds up to about four-million tons of material—and 14-trillion containers. Tampa-based Anchor Glass ([anchorglass.com](http://anchorglass.com)) is one of the largest U.S. manufacturers of glass bottles and jars for the food and beverage industry. It operates production facilities in New York, Florida, Georgia, Indiana, Minnesota, and Oklahoma, as well as a mold-manufacturing plant in Ohio.

“Glass containers have been produced at the Elmira, NY, location since 1912, when Thatcher Glass Manufacturing operated the factory,” said Michael Gesek, engineering services manager. Gesek has been with the company for 24 years.

The Elmira facility has two furnaces, one for amber glass and one for flint glass (the industry term for clear glass). The 50-ft.<sup>3</sup>-capacity GB-50 rotary glass batcher supports the flint-glass line that produces bottles and jars made of clear sodium-silicate glass.

#### **BUILT FOR ABRASIVES**

Manufactured by Munson Machinery Co., Utica, NY ([munsonmachinery.com](http://munsonmachinery.com)), the Elmira rotary glass batcher was installed in 1980 on a

# Mixer Blends On, and On, and On

After almost 40 years of service, the same rotary glass batcher continues mixing material for 1M+ glass containers daily.

new glass-production line, and was rebuilt in 2011. It consists of a horizontal vessel that rotates on external trunnion rings at both ends, eliminating internal shafts or bearings that would be unable to withstand constant contact with highly abrasive materials. Internal vanes, or flights, create a four-way tumble-turn-cut-fold mixing action as the drum rotates. According to Gesek, the action of the internal mixing flights is “critical for mixing efficiency and blending of ingredients rapidly and thoroughly.”

Ingredients are loaded through a stationary inlet at one end of the machine and discharged through a stationary outlet at the opposite end. When the dis-

Blended ingredients discharged from the glass batcher are conveyed to the furnace.



charge plug gate valve is opened, the flights also serve to lift the material toward and through the discharge port. The drum rotates until discharge is complete, preventing separation or stratification of ingredients having disparate sizes, shapes, and bulk densities.

“One-hundred-percent discharge means no carryover from one batch to the next,” Gesek said, “and we’ve been very happy with that.”

The mixer keeps rotating while the ingredients are loaded and discharged, which Gesek considers to be an advantage. “We like that it doesn’t stop between batches. We run five or six batches, 45 minutes to an hour, then shut off for half an hour, depending on production requirements. If we had to stop the mixer between batches, much more power would be required.”

### MIXING INGREDIENTS

For the glass industry, Munson’s rotary glass batcher is fortified with abrasion-resistant materials, and for good reason.

“Glass is made out of sand, along with other ingredients,” Gesek explained. “All the raw materials are brought by truck or rail and stored in silos. Scales on the bottom of the silos measure the specific formula for the batch. The components are sent one at a time into the mixer.”

The mixer processes the same combination of materials—seven different components, plus recycled glass. Anchor’s glass composition uses between 10% and 50% recycled glass, with the flint-glass line usually running 15% to 20%.

All of the components are dry and gravity-fed from the silos, assisted by vibratory feeders. A scale measuring each component signals the PLC to discharge the material onto a belt conveyor, which empties into a chute feeding the mixer inlet.

After the ingredients are loaded, mixing takes only 90 sec. The discharge gate opens and the batch empties into a bucket elevator, which transfers it onto a belt conveyor, which, in turn, loads holding bins, ready for the furnace. The bins hold more than 40 tons of blended batches.

A batch weighs about 2 tons. Historically, the glass batcher’s daily throughput ranges from 270 to 370 tons, depending on demand.



From the furnace, sodium-silicate glass is filled into molds to make clear bottles and jars.

### TOP-NOTCH PM PROGRAM

Since the glass batcher always runs the same mixture, and the components are dry, cleaning is unnecessary. According to Gesek, the company developed a preventive-maintenance (PM) program that has helped to keep the mixer on the job for almost four decades. “We change the inlet and outlet seals annually, and every couple of years we change the trunnion rings and rollers,” he said. “The drive chain (which stretches) and the small sprocket are changed semiannually.”

Some components, however, last longer. The big sprocket is changed every 10 years and the discharge gate assembly every three to five years. The mixing flights have lasted for 20 years, despite the abrasiveness of the glass batches.

Moreover, the glass batcher performed its job for 30 years before a drum was replaced in 2011. The maintenance team worked with Munson on the rebuild, Gesek said. “It took two days, and we ran it at the end of the second day.” One modification that the company made was to install an inverter drive so the drum rotation could start up slowly and reduce stress on the mixer drive system.

### BOTTOM LINE

Just how dependable has the Munson rotary glass batcher been for the Elmira factory?

For Gesek, the answer is easy: “There has never been a production outage because of it in more than 38 years.” **EP**

For more information, visit [munsonmachinery.com](http://munsonmachinery.com).

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