

Replacement Concrete

PROJECT GIVES ELEVATOR CAPABILITY OF LOADING BACK-TO-BACK SHUTTLE TRAINS



NEBRASKA

★ Sedan

Aurora Cooperative
Aurora, NE • 402-694-2106

Founded: 1908
Storage capacity: 35.5 million bushels at 20 locations
Annual volume: 70 million bushels
Annual revenues (gross): \$900 million
Number of members: 10,000
Number of employees: 450
Crops handled: Hard red winter wheat, sorghum, yellow corn, white corn, soybeans
Services: Grain handling and merchandising, feed, agronomy, petroleum, aerial application

Key personnel:

- Steve Thies, regional manager
- Gary Bondegard, superintendent
- Mark Jorgensen, origination
- Weston Winkers, origination

Supplier List

Aeration fans.....Rolfes@Boone
Bearing sensors.....Rolfes@Boone
Bucket elevators..... InterSystems
Catwalk..... InterSystems
Cleaner InterSystems
Concrete silos Hoffmann Inc.
ContractorPMI Nebraska LLC
Control system...Interstates Control Systems Inc.
Conveyors InterSystems
Conveyor belting .. All State Belting
Distributor.....Schlagel Inc.
Dust collection system
AIRLANCO
Elevator buckets Maxi-Lift Inc.
Engineering .. Reznicek Engineering
Grain temp systemOPI-Integris
Leg belting.... All State Belting LLC
Level indicators..... BinMaster Level Controls
Liner CerCo LLC
Millwright.....PMI Nebraska LLC
Motion sensors..4B Components Ltd.
Steel storage/hopper tanks..... GSI
Tower support system.. InterSystems
Truck probe InterSystems



Aerial view of Aurora Cooperative's grain elevator at Sedan, NE. New construction for 2014 shown in the left half of the elevator includes three new Hoffmann jumpform concrete silos, three new GSI surge tanks, and two InterSystems legs. Aerial photo courtesy of Dakota Aerials.

The row of three new jumpform concrete silos and related equipment at Aurora Cooperative's rail terminal in Sedan, NE (402-224-4177) represent more than a recovery from a 2013 explosion that injured two and destroyed a "four-pack" of concrete silos and a headhouse.

No one wants that, but it also offered an opportunity for the cooperative to boost storage and handling capacity to allow the Sedan elevator to load back-to-back shuttle trains on the Union Pacific (UP). (The Occupational Safety and Health Administration ruled the explosion accidental; the cause remains under investigation.)

The 350,000-bushel four-pack since then has been replaced with a set of three 330,000-bushel jumpform concrete silos, along with related grain handling and truck loading equipment.

The net increase of nearly 650,000 bushels



Regional Manager Steve Thies

has allowed Aurora Cooperative to boost its rail loading capacity simply by having more bushels on hand, says Regional Manager Steve Thies, a 13-year veteran with the company. The Sedan location, one of the cooperative's largest in terms of grain volume, has loaded 43 UP 110-car shuttle trains since the rebuilt portion of the elevator went into operation



Ground-level view of the elevator at Sedan. Ground-level photos by Ed Zdrojewski.

in time for the 2014 harvest.

For the redesign and rebuild, Aurora Cooperative turned to PMI Nebraska LLC, Grand Island, NE (308-382-5454), after taking bids on the project. “They’re a proven millwright,” Thies comments. “They do fantastic work, they’re timely, and if something goes down, you can call them at 2 a.m., and they’ll put a crew together.”

To construct the new jumpform silos, PMI brought in Hoffmann Inc., Muscatine, IA (563-263-4733), a frequent partner on concrete projects.

Interstates Control Systems Inc., Sioux Center, IA (712-722-1663), designed and installed the control systems for the upgrade. Reznicek Engineering Inc., Omaha, NE (402-894-0112), performed engineering services.

Upright Storage

The three new Hoffmann silos stand 58 feet in diameter and 140 feet tall above ground level and hold 330,000 bushels each. Rather than a flat floor, each silo has 37-degree concrete cone bottom emptied by a pair of telescoping augers supplied by PMI. The silos can also empty down to a certain point via sidedraw spouts.

“We’re turning those silos constantly,” says Thies. “When we empty them down to the point of ground level, it takes about 45 minutes to clean those floors.”

The jumpform silos also are equipped with eight OPI-Integris temperature cables per tank that also can measure relative humidity, as well as BinMaster level indicators. Thies says the cooperative plans to retrofit other existing silos at Sedan with the OPI-Integris cables.

A set of three Rolfes@Boone 75-hp centrifugal fans per silo provide 1/5 cfm per bushel of aeration.

In addition to the upright concrete silos, Aurora Cooperative added a set of three 15,000-bph GSI overhead hopper tanks designed for truck loading. They can hold grain or screenings.

Grain Handling

PMI also constructed a new grain-handling tower next to the new concrete storage including a 30,000-bph mechanical receiving pit that feeds either of two new 15,000-bph InterSystems legs. The receiving system is serviced by a 100-hp AIRLANCO dust collection system rated at 32,000 cfm.

Thies notes that the legs both can be used for loadout while loading shuttle trains, and one or both can be used for receiving one or two commodities.

The two legs are equipped with single rows of Maxi-Lift 18x8 Tiger-Tuff buckets mounted on 20-inch All State belts. The legs are encased in a 20-foot-x-20-foot InterSystems support tower.

Each leg feeds its own four-hole Schlagel rotary distributor, and the operator has the option of routing grain through 15,000-bph InterSystems gravity screeners mounted above each distributor. From there, a set of 15,000-bph InterSystems overhead drag conveyors take grain out to storage.

The telescoping augers serving the three new silos empty via spouting onto an above-ground InterSystems 30,000-bph enclosed belt conveyor running back to the new leg. The conveyor is constructed on a slight incline adjacent to the jumpform silos.

Thies says he and his employees are happy with the 2014 addition so far. “This is a small-size elevator,” he says, “but it has given us some storage with plenty of space to work around. The additional storage has made handling more grain a much faster and easier process. Loading multiple commodities in back-to-back shuttles is now a reality in meeting the demanding needs of the railroad and the entire industry.”

Ed Zdrojewski, editor



Telescoping augers coming out of three new 330,000-bushel silos emptying onto an InterSystems 30,000-bph enclosed belt conveyor.



View of an empty cone bottom in one of the three new silos.