

BUCKET ELEVATOR

Part of the Stock Fairfield Product Line



A Stock Fairfield Bucket Elevator consists of a series of buckets mounted on a chain or belt placed in a vertical position with the head and foot shaft normally at a fixed distance from each other. The chain or belt is mounted around head and tail pulleys (or sprockets) at the head and foot respectively. One of which includes the drive mechanism and take-up apparatus.

Each Bucket Elevator is specifically designed for the desired application based on the characteristics of the material to be handled as well as the required operating speed. Various bucket sizes and additional options are available to accommodate capacity needs.

There are two basic design differences in Bucket Elevators; elevators that use chain to convey the buckets and elevators that use belts to convey buckets. Chain is used for heavy loads and large lumps and is adaptable for materials that tend to pack together. Chain should be used for very heavy duty service. Belts are used for lighter and free-flowing materials with a small percentage of lumps, such as grain. Belts have high durability

and can be run at higher speeds.

There are two further basic design differences in Bucket Elevators; elevators with spaced buckets and elevators with continuous buckets. A Spaced Bucket Elevator includes a digging boot and allows free discharge of material through the combined efforts of centrifugal force and gravity. On Continuous Bucket Elevators, the buckets are spaced continuously or overlapped for direct loading. The inverted fronts of the buckets on the descending side serve as chutes over which material may flow by gravity from the discharging buckets.

The elevator casings are constructed from steel plate, with corner and flange angles provided in all cases. Inspection doors are placed in accessible positions. The boots, made of heavy-duty steel, are mounted in heavy angle frames. The sides of the boots have removable panels large enough for the removal of a foot sprocket or pullies. The bottom plate is also removable and can be easily replaced when necessary.

The head sections are fitted with supports for the shaft bearings, as well as a flanged discharge hopper with an inspection door. The head is covered by a split removable hood. The operator's platform extends around three sides of the elevator head. Steel safety ladders are provided for access to the operating platform. A safety cage built of heavy forged steel bars surrounds the ladder.

Bucket Elevator Design Options

- Centrifugal Discharge
- Perfect Discharge
- Continuous Bucket
 - Single Strand Continuous
 - Double Strand Continuous
 - Super Capacity Continuous
- Belt and Bucket



Design Option Details for the

Stock Fairfield Bucket Elevator

• Centrifugal Discharge Elevators

The most frequently used elevator type for free-flowing, fine or small lump materials such as grain, coal, sand, clay, sugar, cullet or dry chemicals. Buckets are "A" or "AA" malleable iron or steel mounted at specific intervals on a single strand of chain, or on a belt. These elevators operate vertically. Buckets are loaded by a combination of material flowing into them and by scooping from the boot. The material is discharged by centrifugal action as the buckets pass over the head wheel. Speeds are relatively high and are determined by head wheel diameter and its relation to centrifugal action.

• Perfect Discharge Elevators

Used to handle light, aerated, dusty and sticky materials that will not discharge cleanly in a centrifugal discharge elevator. Buckets are "A" or "AA" malleable iron or steel mounted at specific intervals on two strands of chain which are attached at the ends of the buckets. Construction is very similar to the centrifugal discharge type except that the spaced buckets are snubbed back under head sprockets to gain a more complete discharge at a slower chain speed. Larger buckets or closer spacing create capacity levels equal to the centrifugal type. Elevator casings are somewhat wider than standard due to the clearance needed for the chain at the ends of the buckets.

• Belt and Bucket Elevators

Belt and Bucket type elevators are sometimes preferred for handling certain small size materials such as grain, cereals, cottonseed, sand, cullet, and stone. These elevators operate quietly and at high speeds. The belt can be obtained in various plies to provide strength for elevators of any practical length. The rubber cover gives good traction for drive pulleys, protects from deterioration, resists wear and abrasion from the corrosive materials handled, and permits the bucket to imbed itself in the surface. The pulleys have crown faces to help keep the belt centered.



• Continuous Bucket Elevators

Recommended for large capacity heavy duty service. Steel buckets are mounted continuously on a single chain, double strands of chain or a belt. The elevators can be either vertical or inclined. As the buckets pass over the head wheel the flanged front of the preceding bucket acts as a chute to lower the material to the discharge spout. This method of discharge, plus the slow speed, minimizes breakage of fragile materials. Because these elevators are not the self-digging type, loading leg must be used, requiring a deeper pit than that needed for centrifugal or perfect discharge elevators.

• Continuous Single Strand Elevators

Consist of steel buckets mounted continuously on a chain or belt. The material is discharged by gravity, flowing from each bucket into the discharge chute. They are loaded with the aid of a loading leg so that there is always one bucket in the receiving position below the bottom of the receiving chute.

• Double Strand Continuous Elevators

Used for situations that require heavy-duty, long life service and the handling of large capacities. The continuous steel buckets are mounted on the ends to two matched strands of steel bushed roller chains. The casings are provided with steel angle guides for both up-going and return buckets. Loading of the buckets is achieved by material flowing into the buckets with the aid of a loading leg. The material is discharged by gravity, flowing from each bucket onto the back of the preceding bucket and into the discharge chute.

• Continuous Super Capacity Elevators

Used for the same purpose as the other continuous type elevators, but handle larger capacities. A larger capacity in the same size casing is possible because of the unique way the bucket is constructed. The steel buckets are mounted between two matched strands of steel roller chain. Loading is by gravity flow of material into the buckets aided by the use of a loading leg. Gravity forces the material to flow out of the bucket as it passes over the head wheel to the back of the preceding bucket and into the discharge chute. Angle guides are provided in the casing for both up-going and return of runs of chain.

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