



# MAXI-LIFT

## makes the move

Material-handling elevators are the rapid transit systems in manufacturing operations and their buckets are like high-speed boxcars.

BY CLAIR DAVID URBAIN

**T**ransforming raw materials into finished goods means handling bulk commodities and shuttling them quickly and reliably from delivery to storage or to the production line.

Often, vertical elevators are the conveyors of these materials, and their uptime and efficiency is key to productivity. If the elevator stops or slows the production process, it means greater costs and more headaches for facilities aiming for optimum production and lowest finished per-unit cost. Unfortunately, they can also be a high-wear item, requiring expensive replacement and downtime.



PHOTOS: MAXI-LIFT INC.

**Customer needs**

“We surveyed end-users of elevator buckets and found that 60 percent of them were unhappy with elevator bucket life. It’s expensive to replace elevator buckets, and can be dangerous, so outside maintenance professionals are often called to do the job quickly and safely. That’s why we strive to develop buckets that last as much as six times longer than other buckets,” says Paul Phillips, Maxi-Lift president.

Maxi-Lift, based in Addison, Texas, has a 300,000 sq.-ft. manufacturing plant that makes a wide variety of elevator buckets in various materials. It is the leading international manufacturer and marketer of plastic elevator buckets and related accessories for agricultural and industrial facilities. Since 1973, Maxi-Lift has helped customers succeed by engineering elevator buckets with longer life, less breakage and more capacity. For customers, that ultimately means improved uptime, lower total cost of ownership and greater reliability.

“Our elevator buckets are used to move bulk material in many agricultural and industrial applications around the world. In industrial applications, our buckets are used to move cement, sand, aggregate and even glass,” says Phillips, “We have a bucket for every application; they are made with ductile iron, steel or plastic. We design in toughness, which means longer life. The innovations we put into our

*Right: Maxi-Lift’s manufacturing facilities in Addison, Texas. Below: Maxi-Lift management team includes CEO Beau Sahm, chairman and founder Victor Sahm Jr., and president Paul Phillips.*



material and our bucket design puts that material in the right place and at the right thickness, which increases the life and the capacity of our buckets.”

Maxi-Lift has a sister company, Southwest Agri-Plastics Inc., which produces a wide variety of plastic slats, grates, feeders and other equipment geared for agricultural operations. Maxi-Lift and Southwest Agri-Plastics continually work with customers to identify needs and develop new and innovative products for facilities around the world.

Presently, their products are used in more than 70 countries. “Our products are used on rice farms in Guyana, elevator upgrades in Romania, new feed plants in China, large river and port projects in North America, cement facilities in Mexico, and the largest soybean processing plants in Argentina. The Maxi-Lift name is known internationally for outstanding products and services. We are proud to call ourselves the global leader in the industry,” says Phillips.

“We offer free technical service that can help you, no matter what type of problem you may be facing. We can help you design,



analyze, evaluate or validate the technical details of your bucket elevators. We specialize in troubleshooting existing elevators, assessing upgrade capacity for new demands and verifying your existing elevator setup. No problem is too big or too small for our team,” Phillips says.

**Buckets worthy of the Maxi-Lift name**

“Our customers demand the toughest, longest-lasting buckets and we manufacture the strongest brand-named buckets in the world: Tiger-Tuff, Tiger-CC, Maxi-Tuff, CC-Max, and HD-Max. It’s no surprise that the largest agricultural and industrial Fortune 500 companies ask for Maxi-Lift buckets by name,” Phillips says.

Each line of Maxi-Lift elevator buckets is built with the durability and capacity in mind for specific materials and material-handling environments.

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## PRODUCT PROFILE

### AGRICULTURAL APPLICATIONS

#### ■ Tiger Tuff and Tiger Tuff-CC.

These maximum-duty buckets for agricultural applications are available in 30 sizes in polyethylene, nylon and urethane materials.

They have thicker corners and walls for greater wear resistance and heavier front lips for increased digging capability. The buckets can be configured to increase elevator capacity and are excellent high-volume buckets for grain, fertilizer, pellets and other agricultural or light industrial materials.

The buckets are made with high-impact/abrasion-resistant materials that last long and are non-corrosive and non-sparking. The Tiger-CC buckets are designed for high-volume operations and can move up to 30,000 bu./hour in a single row configuration. Bucket vents can be added to improve material pick-up and discharge.

■ **HD-Max.** Second only to the Tiger-Tuff buckets in durability, these buckets have a reinforced front lip to increase bucket life and reduce bucket breakage. Primarily used in agricultural applications, they are available in polyethylene, nylon and urethane materials in 32 sizes. A low-profile style allows closer spacing on the elevator belt for increased capacity. Bucket vents can be added to facilitate material pick-up and discharge.

■ **CC-Max.** These heavy-duty agricultural buckets are designed as a direct replacement for CC and other older-style buckets. They have the same shape and performance characteristics, but are designed to last much longer than conventional CC buckets. They are also available

TIGER TUFF



TIGER TUFF-CC



HD-MAX



CC-MAX



MAXI-TUFF AA



DI-MAX AA



DI-MAX AC



WELDED STEEL



in a low-profile style that can help increase elevator capacity. They are available in 28 sizes in polyethylene, nylon and urethane materials.

■ **Dura-Bucket SS.** Built primarily for agricultural applications, this plastic bucket has more than 50 years of performance history. Its versatile design performs well at a wide variety of speeds and applications. It's also available in a low-profile style that can increase elevator capacity and comes in polyethylene.

### INDUSTRIAL APPLICATIONS

■ **Maxi-Tuff AA.** This industrial-duty bucket is designed for slow-speed (125-450 fpm) centrifugal discharge elevators. It's optimal for cement, stone, sand, gravel, coal, fertilizer, clay, salt, limestone and concrete conveyance. It has the traditional shape of a cast-iron bucket but has thicker walls and lips for greater durability. The polyethylene, nylon or urethane buckets weigh as much as 80 percent less than cast iron buckets, which reduces energy requirements to operate the elevator. They are easier to install and save money when compared with carbon-steel buckets, Phillips says. They are also available in medium front (MF) styles, which work well with fluffy, free-flowing materials or materials that need gentle handling.

■ **Tiger Tuff.** Tiger Tuff industrial-duty buckets have the same performance characteristics of Tiger Tuff agricultural duty buckets, but are designed to operate in slow-speed (125-250 fpm) elevators. They can reduce elevator weight by as much as 80 percent, netting energy savings, and their polyethylene, nylon or urethane materials and



unique bucket design results in longer life. They are heat-, impact- and abrasion-resistant and are non-corrosive and non-sparking.

■ **DI-Max.** These ductile-iron AA-, AA Digger- and AC-style buckets have thicker walls and a reinforced front lip for long life. The ductile iron wears better and withstands abrasive materials better than malleable iron of the same gauge, resulting in longer life. They can work in temperatures up to 600 F.

■ **Welded steel.** Maxi-Lift has welded steel buckets in AA, AC, SC ACS styles with medium front (MF), low front (LF) or high front (HF) lips. They can be fabricated

from 14-, 12-, 10-, or 7-gauge or 1/4", 5/16", 3/8" or 1/2" carbon steel, aluminum or stainless steel. They can be fabricated with optional AR plates, wear lips, hardened surfaces and hard bead welds.

■ **Custom styles.** Maxi-Lift engineers and sales professionals are no strangers to special-application situations. They will work with you to custom-build any bucket style to meet the demands of your specific material handling needs. They can even offer suggestions in design and material changes to help you



achieve longest bucket life and best performance.

■ **Parts and accessories.** Maxi-Lift offers a wide range of elevator bolts, drag conveyor flights, screw conveyor hanger bearings as well as a full line of belt splices needed to complete final installation of your replacement material handling equipment. ☉

## Four easy steps to replacement bucket selection

Facilities can greatly improve productivity, reduce operating costs and extend elevator life by matching the elevator bucket to the material being handled.

Maxi-Lift engineers recommend the following steps to select the proper replacement bucket for your elevator. Consult with Maxi-Lift professionals for ideas on bucket selection to improve capacity, increase productivity and improve bucket life.

### ■ Step 1 Measure the bucket

Measure the bucket length at the back mounting surface, from end cap to end cap. For other dimensions, lay the bucket on its back and measure the projection, which is the vertical

measurement from the back to the lip as it would project from the belt or chain. Finally, measure the bucket depth, which is the overall side profile dimension.

### ■ Step 2 Select bucket style

Agricultural-style buckets typically have a high-speed centrifugal discharge rate of 210-900 fpm; industrial style buckets typically have a low-speed centrifugal discharge rate of 125-450 fpm. Identify your elevator's fpm speed, then identify its style: Tiger-Tuff, HD-Max, CC-Max, AA, HF, MF, LF, SC, AC, ACS or custom.

### ■ Step 3 Choose bucket material

Buckets are made with several types of materials that can be best matched

to the material handling application:

**Polyethylene:** FDA-approved for grain and food products; can be used in -120 F to 180 F with 210 F intermittent exposure;

**Nylon:** Non-FDA approved for hot, dense, high-impact abrasive materials from -60 F to 300 F with 350 F intermittent exposure;

**Urethane:** FDA-approved; for heavy, abrasive, sticky materials from -60 F to 180 F with 210 F intermittent exposure;

**FDA nylon:** FDA-approved for hot, high-impact abrasive food-grade material with -60 F to 300 F operating range;

**Plastic:** For general grain and sugar applications;

**Ductile iron or welded steel:**

For highly abrasive and high-impact materials.

### ■ Step 4 Identify bucket vent pattern

Vents can aid in bucket fill or discharge of light, fluffy materials or materials that are extremely dense or do not flow easily. A #1 vent has vent holes that match the bolt mounting holes; #2 vent has one row of holes on 1 1/8" centers; #3 vent has two rows of holes on 1 1/8" centers; and #4 vent has a hole configuration the same as a #3 vent with three additional holes in each end cap. Custom vents are also available and Maxi-Lift sales and engineering experts can offer advice on their configuration based on the material being handled.