A detailed microscopic image of plant cells, showing a complex network of cell walls and large central vacuoles. The cells are stained with various colors, including blue, yellow, and purple, highlighting different cellular structures. A red rectangular box is overlaid on the upper portion of the image, containing white text.

LITTLEFORD
CB
HIGH SPEED
PROCESSOR

Littleford Day
Where Processing Ideas Become Reality

LITTLEFORD CB HIGH SPEED PROCESSOR

Designed For A Variety Of Continuous Processes

The *Littleford CB High Speed Processor* is designed for continuous processing of granular, pulverized, or fibrous bulk materials that require high shear input rates.

The versatility of the *Littleford CB High Speed Processor* is illustrated in the following list of typical process applications:

- **Densification of bulk materials through addition of high shear input rates (e.g., detergents)**
- **Preparation of feed stock upstream of dryers (e.g., carbonaceous sludges, potato pulp, grain carriers with molasses, municipal and industrial dehydrated sewage sludges)**
- **Granulation of pulverized products by addition of a binder (e.g., carbonaceous ash, clay, gypsum, detergents)**
- **Hydration processes (e.g., phosphates, sulfates)**
- **Blending pulverized material with fibrous material (e.g., gypsum + paper fibers, foundry mixes)**
- **Dispersion of agglomerates in bulk materials (e.g., filter cake + fly ash)**

Unmatched Performance

- High degree of mixing accuracy in short retention time (less than 20 seconds)
- Large throughput capacities
- Heavy-duty construction, simple operation and easy maintenance
- Outstanding wear life

For State-Of-The-Art Operation

The *Littleford CB High Speed Processor* is designed for high throughput rates.

The *Littleford CB High Speed Processor* features a horizontal two-part clamshell-type mixing chamber. The upper half of the shell is hinged and electromechanically actuated for easy access. A jacket is supplied for heating or cooling media. The mixing tools are constructed of special wear resistant materials.

Granular bulk material is fed into the top of the mixing drum at the end opposite the drive. Liquids may be added directly into the rotating ring of material in the mixer through a distribution manifold system. The manifold may be installed in either the upper or lower half of the shell.

The horizontal shaft utilizes a significant quantity of specially designed feeding and mixing tools arranged in a spiral-like pattern. The specially shaped, high-speed

tools supply high shear mixing rates, facilitate material transport through the mixer and disperse the liquid additives uniformly.

Product is discharged continuously through a bottom opening located at the drive end. The discharge rate is continuously regulated via a pneumatic gate control.

Additional processing flexibility may be achieved by utilizing a variable speed drive. By changing the shaft speed, the degree of densification and/or the throughput rate can be varied.

The mixer densifies the product by adding work energy to the materials via mechanical shear. The *Littleford CB Series High Speed Processor* may be used as a stand-alone unit or in combination with a larger *Littleford KM Series Continuous Ploughshare Mixer*. The desired level of densification determines which equipment configuration should be used.

Spotlight

Detergent Powder Densification

The *Littleford CB Series High Speed Processor* is ideal for the densification of detergent powders.

The typical retention time of detergent product in the *Littleford CB Series High Speed Processor* is 15 to 20 seconds. During that time the product is subjected to intense mechanical shear causing the fragile spray dried granules to break up and densify. Increases in product density of up to 50% are common.

If further densification is required, the product may be transferred from

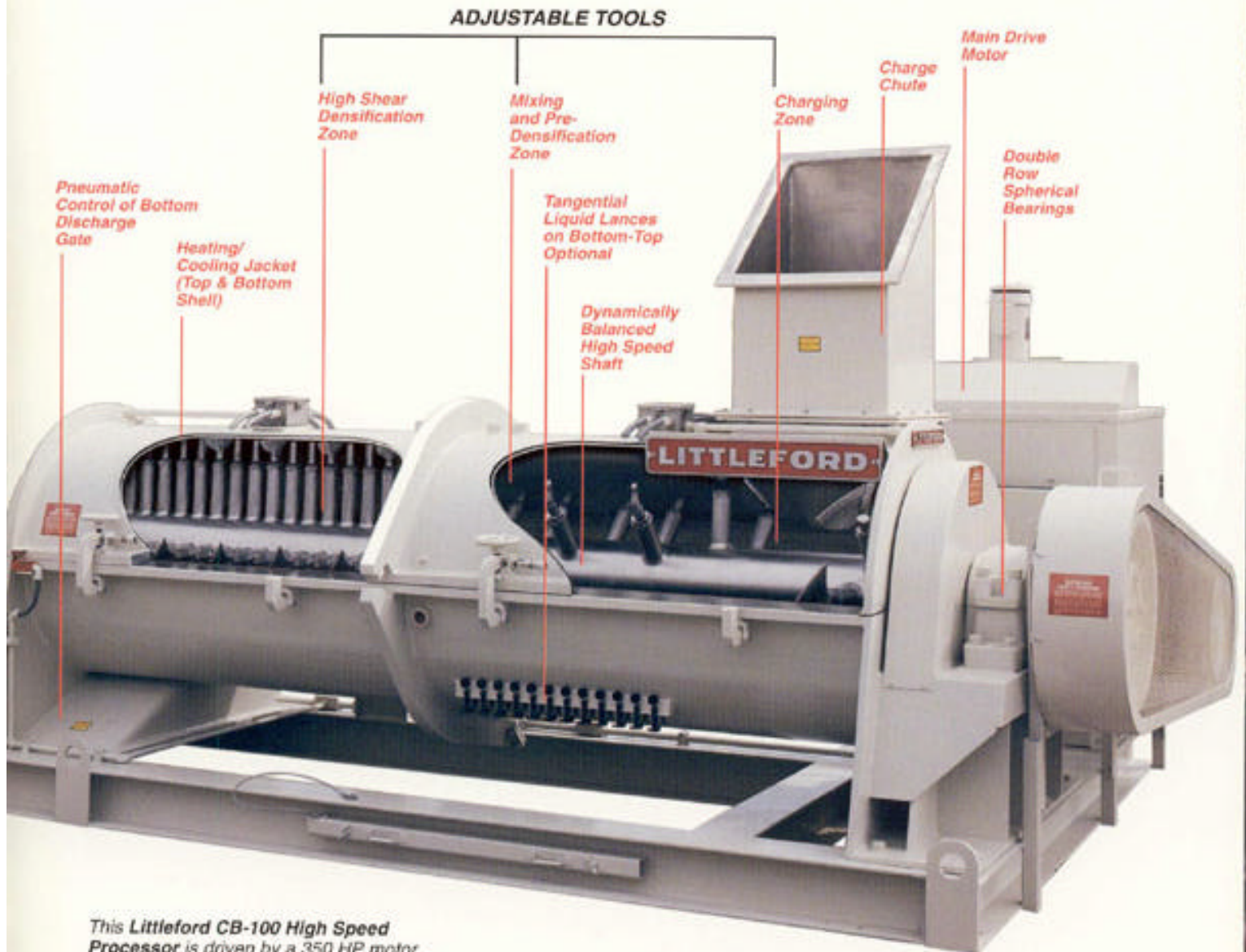
the *Littleford CB Series High Speed Processor* to a *Littleford KM Series Continuous Mixer*.

The *Littleford KM Mixer* provides additional mechanical shear via the rolling/agglomerating action of the curve-sided mixing tools, or "plows". Additional liquids can be added and the high speed impact choppers used to aid in both dispersion of the liquids and breaking up any lumps. Retention time in the *Littleford KM Series Continuous Mixer* normally ranges from 5 to 10 minutes.

Final product density increases of up to 100% relative to the original spray dried detergent granules may be achieved using the *Littleford* two-stage densification technology.

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This Littleford CB-100 High Speed Processor is driven by a 350 HP motor (variable speed frequency controller not shown). Shaft speed ranges from 250 to 1000 rpm.

This Littleford KM-15,000 Continuous Mixer is fed from the CB 100. The KM-15,000 is equipped with six (6) - 15 HP high speed impact choppers (not visible from front view).



PROCESS TESTING AND DEVELOPMENT

Partnership

For many customers, a partnership with Littleford Day begins in our unique Process Testing and Development Center at our headquarters in Florence, Kentucky.

The center is staffed by Littleford Day engineers, chemists and technologists who understand the specific requirements of your industry and can recommend the best processing equipment and solutions for your needs.

Once you build a working relationship with us during your Process Testing and Development Program, we are confident Littleford Day will become your choice for the right technology and the best processing results for your specific application.

The Best Value For Your Investment

The exclusive product features pioneered by Littleford Day improve quality while reducing your production time and costs. Our manufacturing care and tight quality standards result in processing equipment engineered with your high performance in mind. We are committed to manufacturing processing equipment that will surpass your expectations – and give you the best value for your investment.



A Commitment To Processing Innovation

Let us analyze your application. Littleford Day experts are available to review your specific needs and solve your toughest processing problems. Littleford Day equipment and technology can save you valuable production time and increase the quality of your product.

We don't want to just sell you a piece of processing equipment – we want to create a long-term partnership with your business.



SPECIFICATIONS

LITTLEFORD CB HIGH SPEED PROCESSOR

Model No.	Throughput (lb/h)	
	Minimum	Maximum
CB-30	900	4,500
CB-50	5,400	27,000
CB-60	9,900	49,000
CB-75	19,000	95,000
CB-100	30,000	150,000

** Actual throughput and retention time will vary with type of product and density.*

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