



Stirring Machines



Fastir[®]

Eliminates Overdried Grain • Reliable • Cuts Drying Time and Costs



Fastir®

Eliminate Overdried Grain. Increase Airflow. Preserve Grain Quality.

While the most efficient way to dry grain is to add heat, you run the risk of overdrying the grain. A stirring machine is essential to prevent this. Stirring mixes the driest grain at the bottom of the bin with the wetter grain towards the top, resulting in more uniform moisture content. University tests show less than 1% variation from top to bottom in stirred grain. Stirring also loosens the grain, reducing static pressure and increasing airflow, so grain dries more quickly and efficiently. University tests show using a stirring machine in wet grain with a powered spreader increases airflow by 33%. Stirring also breaks up "hot spots" and extends storage life.

DRYING BASICS

For Every 20° temperature rise, relative humidity (RH) is cut by 1/2.

Outside Air	Heated to	RH	Bottom Layer Dried To	Drying Ratio*
50°F 70% RH	No heat added	70%	15%	1.0
50°F 70% RH	70°F	35%	9%	3.5
50°F 70% RH	90°F	15%	6%	6.5

*Drying Ratio refers to how many times faster grain will dry with heat as compared to drying with natural air.

Sukup Augers: More Even Stirring



The picture at left shows overdried grain colored red at the bottom with wetter grain at the top. Constant pitch augers pull dried grain from the bottom, mixing it with wetter grain at the top while loosening the grain to increase airflow.



Sukup augers are continuously working forward while moving in and out on the crosstube to ensure all grain is being stirred. During the stirring process a mechanical reversing drive and downward pull of the augers ensure a positive changing pattern.

Stirring Pays - Even at low temperatures.

While stirring is a must for in-bin drying with heat, it pays for itself quickly in low-temp or natural air drying situations as well. With just a 10° temperature rise and 8 pt. moisture removal, you can easily see the benefits of adding a stirring machine. Imagine the savings at higher temperatures!

Figures based on 10,000 bu. in a 30' diameter bin with a 10 hp fan and are estimates only.

	No Stirring	With Stirring
Time to Dry	600 hours	312 hours
Total Drying Costs (gas and electricity)	\$2338.71	\$1504.82
Cost of Overdrying Bottom Layers	\$1980.00	-
Total Cost	\$4318.71	\$1504.82
Annual Savings with Stirring Machine	-	\$2813.89

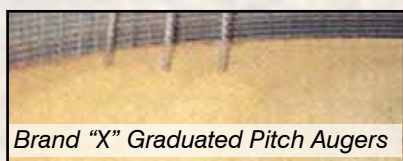
Costs based on \$0.935/kw/hr., 1.75/gal. LP and \$5.00/bu. corn.

Sukup Stirring Machines: *Now that's a Solution*™

- **ADD AUGERS EASILY.** Sukup is the only company offering a kit for easily adding more stirring augers to meet additional drying capacity needs. Other brands would require a major overhaul or new machine.
- **HEAVY-DUTY GEAR MOTOR** gives greater reliability.
- **EXCLUSIVE ROTATING CONTACT** is heated to stay dry in high moisture conditions.
- **STANDARD INSIDE BIN LADDER** may be used with Sukup stirring machines for greater convenience and personal safety.
- **MOTORS** are heavy-duty, fan cooled, totally enclosed and protected by a thermal overload. Single and three phase units available.
- **A TILT SWITCH** on each auger controls forward movement for trouble-free operation.
- **SUKUP TRACK MOUNTS** higher in the bin than competing units, giving up to 680 bu. of extra storage in a 36' diameter bin. Sukup bins can be pre-punched for Sukup track.



WHO CREATES THE BIGGEST STIR?

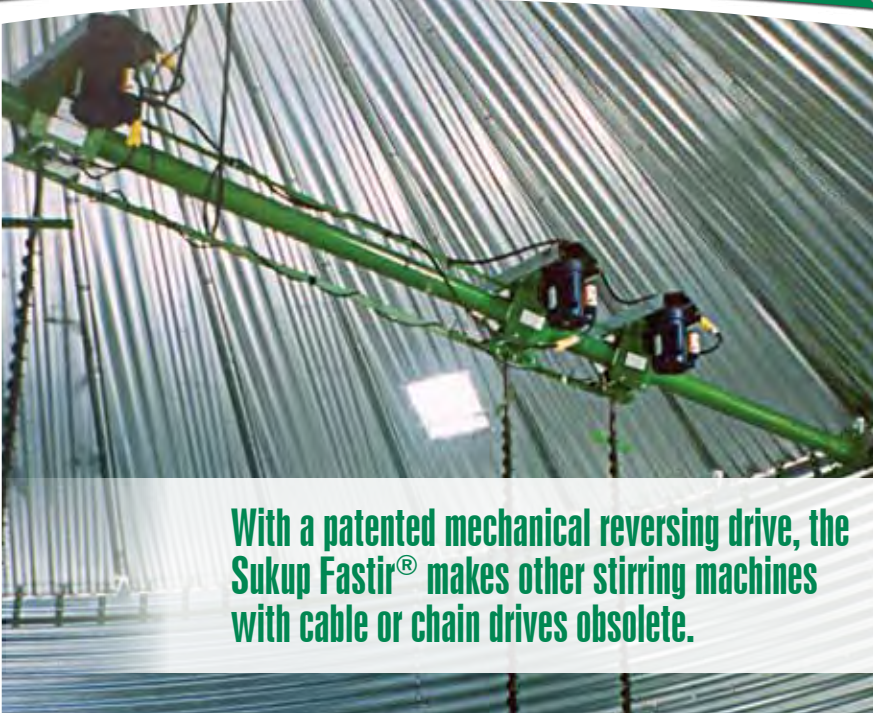


Sukup augers stir more grain.

Sukup augers are constant pitch for better stirring and fill at the bottom where the overdried grain is located. Other companies use graduated pitch augers which pick up small amounts of grain along the entire length, so less overdried grain is moved from floor. Compare the piles of grain produced by the augers in these photographs. It's plain to see that constant pitch augers move more grain!

Augers are key to optimum stirring.

- Long-wearing, hard-faced down augers are standard on Sukup stirring machines.
- Down augers have 1" shafts and 1/4" hard-faced flighting.
- Various auger lengths are available to match bin sidewall heights (For best operation, down auger length should not exceed 20'.)
- Sukup down augers are covered by a two-year unconditional warranty.



With a patented mechanical reversing drive, the Sukup Fastir® makes other stirring machines with cable or chain drives obsolete.

A one of a kind product **leading** the industry.

The patented, mechanical reversing drive on the Fastir® is the only one of its kind, making it the simplest and most dependable stirring machine on the market. This patented drive mechanism is operated by a single drive wheel. The movement of a lever by the reversing plates changes the angle of this drive wheel to move the carriage in and out on the crosstube. The simple process eliminates electric reversing switches, drive gearboxes, chains, and cables.



The Fastir® is the Ideal System for Large or Small Drying Operations.

- One primary carriage may be used to travel the entire length of the crosstube in smaller bins.
- A satellite carriage may be linked to the primary carriage for larger bins. Each carriage on 2-auger units travels about half the length of the crosstube.
- Up to three satellite carriages may be linked to the primary carriage for high capacity stirring applications. The satellite carriages on multiple auger units are positioned closer together to stir the larger volume of grain in the outer portion of the bin.

The Fastir® Extras Include:

- Heavy-duty 4 1/2" dia. crosstube on machines under 40' bin diameter and 5 1/2" dia. on 40' and larger bin diameter machines for maximum strength.
- Offset hangers provide better stirring in the center of the bin to break up the concentration of fines over the center sump.
- Angled shields on carriages allow stirring closer to the wall.
- No zerks to grease.
- CSA models available.
- Standard stabilizer bar prevents augers from working too far forward or lagging behind in tough drying conditions.



The Fastir® Stirring Pattern

The Fastir® Stirring Pattern illustrated here shows the approximate pattern resulting from stirring for a day and a half with one down auger. Notice the complete stirring that has occurred. (Approximate times and pattern for a 24' bin.)

Down Auger Recommendations

Bin Dia.	Natural Air	Plenum Temp.*		Cont. Flow Systems
		Up to 110° F	110° to 130° F	
15'-23'	1	2	3	3
24'-37'	2	3	4	4
40'-49'	3	4	5	5

*Temperatures may vary with other grains. The above Plenum temperatures are typical with field corn.

Sukup Augers can be used to stir corn, beans, rice, wheat, barley, sunflowers, popcorn, milo, sorghum, oats, and fescue.



New pivoting hanger with offset (patent pending) provides more stirring in the center of the bin where it's toughest to dry.



The Extras Add A Lot

Sukup adds a lot of extras to the Fastir® to give you the most machine for your money. These extras add up to make the Fastir® the best and most flexible stirring machine on the market, but they don't add any extra cost!

Sukup Fastir® Plus

Stirs Along the Bin Wall

The Sukup Fastir® Plus has all of the features of our standard Fastir®, like mechanical reversing and constant pitch down augers, plus we've added a stationary auger to stir along the outside of the bin. This stationary auger ensures complete stirring around the outside of the bin, where a large portion of the grain is located.



Fastir® Plus Down Auger Recommendations	Bin Diameter	# of Stirring Augers
	15'-24'	3
	27'-36'	4
	42'-48'	5



Drying, Storage, and Handling Solutions®: Our company has grown from the ground up to become the *largest family-owned*, full-line grain drying, storage and handling equipment manufacturer in the world. Sukup Manufacturing Co. is also the *world's fastest-growing bin manufacturer*. And, with the addition of Sukup Steel Buildings, we can protect and preserve not only your crop, but also your equipment.



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