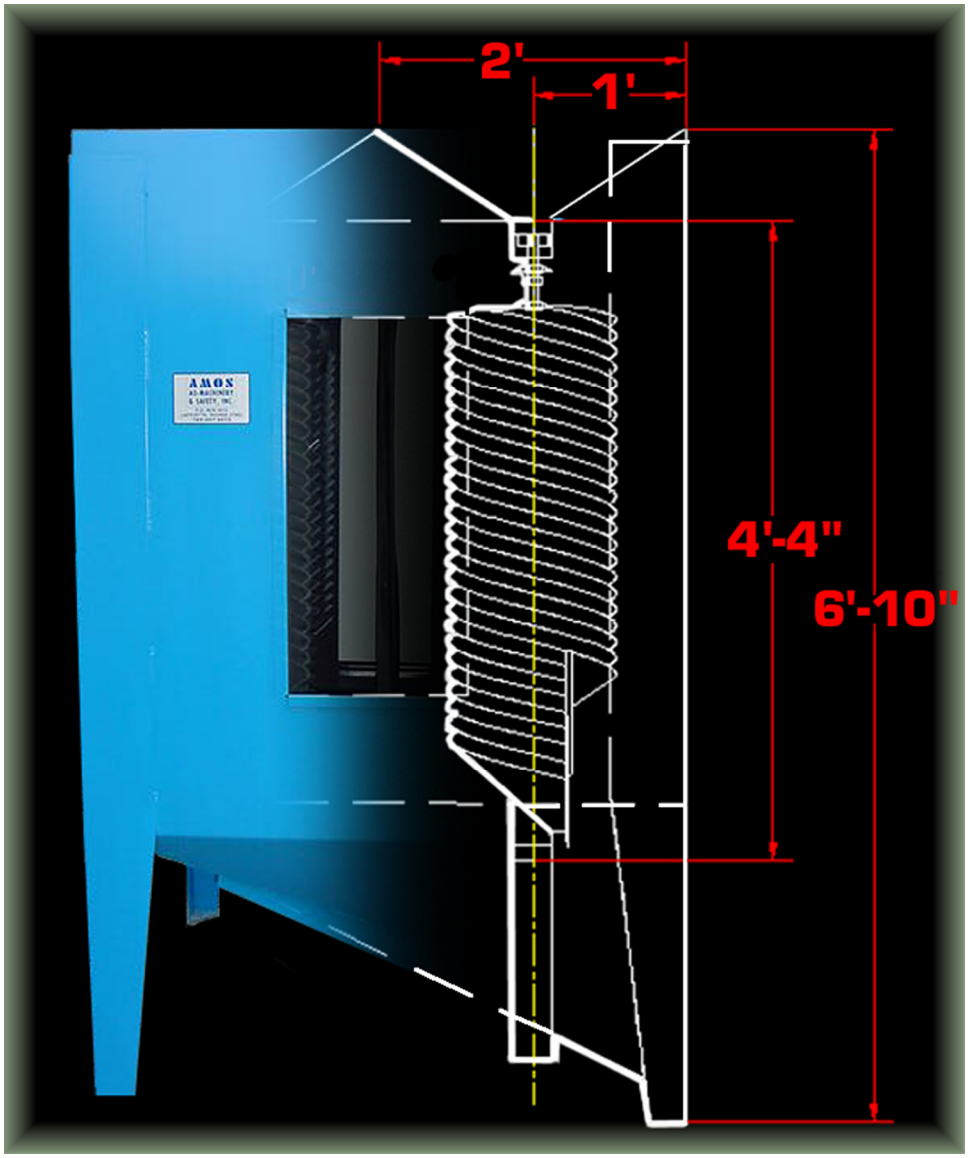

MODEL 200
US Patents 4,146,137, 4,207,987

AMOS SPIRAL SEPARATOR
OPERATING INSTRUCTIONS

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INSTALLATION

First check your new machine to insure that it has arrived complete and without damage. A model 100 has 2 spiral cartridges, a 200 has 4 cartridges and a 300 has 6 cartridges. Each individual cartridge has 2 sets of fingers, located at the top turn and bottom turn. Sometimes the cartridges shift during shipment. Make sure that the sliding plate at the bottom of each cartridge is opposite the rod on which the fingers are mounted. This is very important because if they are not set this way the adjustments to the fingers will not be uniform.

CAUTION: THE SPIRALS ARE SHARP. HANDLE WITH CARE.

Remove the backing film or paper from the windows. Check to see that the Plexiglas has not been chipped or broken during shipment.

The AMOS spiral separator should be installed after the air-screen machine. The spiral is designed to remove flat contaminants, i.e. split and misshapen seed, from the round good product. Because of this the bucket elevators and handling system within the plant should be designed for gentle handling. “Easy dump” type bucket elevators are recommended.

Most spiral separators are installed in conditioning plants that are also used for seed that should not go through the spiral. For example, when cleaning wheat seed the spiral is not normally used. Consequently, the spiral should be installed so that it can be bypassed.

A surge bin should be installed ahead of your AMOS spiral. The function of the surge bin is to insure a constant feed of seed into the spiral. The surge bin should have at least 10% of the hourly capacity of the spiral.

OPERATION AND AJUSTMENT FOR SOYBEANS

The AMOS spiral separator is unique in that it is adjustable. There are three basic adjustments to the spiral separator. These are rate of feed, adjustments to the fingers and adjustments to

the sliding plate. Once the machine is initially “dry set”, only one adjustment should be made at a time because the different adjustments interact with each other.

The operation of all spirals is based on shape and surface texture of the seed. The spiral separates flattened particles and those with roughened seed coats from smooth round seed. The round seed roll off the spiral flighting and the flattened culls slide down the flights. The good round product rolls out into the cabinet and the culls go back inside the tubes at the bottom of the cartridge.

The feed rate is controlled by a threaded cone at the top of each spiral cartridge. Below the cone is a locking nut to prevent unintended changes. Adjusting the feed rate is a bit of a trial and error system. The flow should be adjusted so that each cartridge is fed evenly and will handle the proper flow rate. The faster a spiral is fed the more product it will remove, both good and bad. A basic rule of thumb is that the Model 200 will handle about 200 bushel per hour of soybeans. This will vary depending on the roundness of the product. When the good product is round, the operator will get more capacity than when the good product is slightly flattened. If the machine is cleaning out too much good product you may need to slow the feed rate.

The spiral separator has either 2, 4 or 6 individual spiral cartridges within the cabinet. Each spiral cartridge has 8 flights with 4 complete turns from top to bottom. Normally, about 65% of the good seed come off the flights within the first two turns. Culls with rough seed coats or slightly flattened seed begin coming off with the good round product further down the spiral. By the fourth turn there should be very little good seed left on the spiral. These principles allow the operator to adjust the fingers and sliding plate.

There are two sets of fingers on each spiral cartridge, one at the top turn and one at the bottom. The fingers are always set pointing downhill. The purpose of the fingers is to keep product on the flights so that a proper separation may be made. **Moisture content of the soybean seed determines how the fingers are set.** When the moisture of the seed is 11% or less, the top set of fingers is always used. Dryer seed are slicker than moist seed and tend to come off the flights without being properly sorted. The top set of fingers should be set so that the tips of fingers are about 1” - 1 ½” from the edge with dry seed. If the moisture content is higher move the tips closer to the edge. With high moisture seed the top set of fingers sometimes may not be used. The bottom set of fingers is used to prevent cull seed or splits from rolling off the flights. If more cleanout is required set the tips of the bottom set 1” – 2” from the edge of the flights. If there is two much cleanout set the finger tips closer to the edge.

The sliding plates are also used to regulate the amount of cleanout. If the good seed are round the sliding plates are normally adjusted closer up to the edge. This insures that culls are directed into the tube. When the good seed are more flattened, the sliding plate is adjusted down toward the tube to reduce cleanout of good seed. Often in years with dry weather the good seed are more flattened. Some varieties are also flatter than others. Both of these conditions result in larger than acceptable cleanout of good product. The sliding plate is critical to balance retaining good product and removing the culls. When it is adjusted up, more is removed. When adjusted down toward the tube, less is removed. If the cleanout is too high, slide the plate in and down. If the cleanout is too low, slide the plate out and up.
The AMOS spiral separator can be used in elevators to remove corn from commercial soybeans. When so used the soybean-corn mixture must be first run over a scalper before the spiral separator. Approximate screens to use are a 20/64” round hole on the scalping screens and a 9/64” x ¾” slotted screen for sifting.

If the spiral separator is fed too fast the cleanout will increase. If after sliding the plate down and in the cleanout is still too great, lower the feed rate.

WARRANTY

The AMOS spiral separator is warranted for one year for parts and labor for defective manufacturing. AMOS requires that the factory be contacted before machines are returned for service.