

CASE STUDY

Rotoshear®
J. R. Simplot



Rotoshear® screen keeps up with potato processor's cutting line waste

Problem

There is more waste generated in the cutting of curly potato fries than any other type of potato processing. This creates special problems handling the waste stream from the cutting line. Liquid/solid separation equipment must: 1) handle a large hydraulic throughput, 2) capture solids for by-product recovery, and 3) remove solids efficiently to prevent nuisance clogging in the starch recovery system.

The Caldwell, Idaho plant of J. R. Simplot, one of the nation's largest potato processors, recently installed two new, highly efficient closed loop cutting line systems. In each, coarse potato cuttings are screened out and used for alcohol plant feed stock and in the production of ethyl alcohol.

The remaining liquid is recirculated as flume water and reduces fresh water make-up requirements of the system. Suspended potato solids are processed further in a starch recovery line. The entire operation is highly efficient with little waste. However, in order to make the process work, Simplot first had to secure reliable screening equipment capable of capturing huge volumes of solids to prevent system clogging.

Solution

Parkson Rotoshear® equipment was selected for its large hydraulic throughput and for its compact design. One Rotoshear® unit handles the load of four stationary screens and occupies only 25% of the space.

A Parkson Rotoshear®, Model HRS3672 x .040" (1.0 mm), was selected for the smaller cutting line. The HRS3672 screen with a 1/2 HP motor is a small yet efficient unit.

Equipped with large .040" openings and a 7" (177.8 mm) discharge head, it can easily handle the peak influent flow of 1,200 GPM (273 M3/H) and remove up to 1 yd³ (24 meters) of solids per hour.

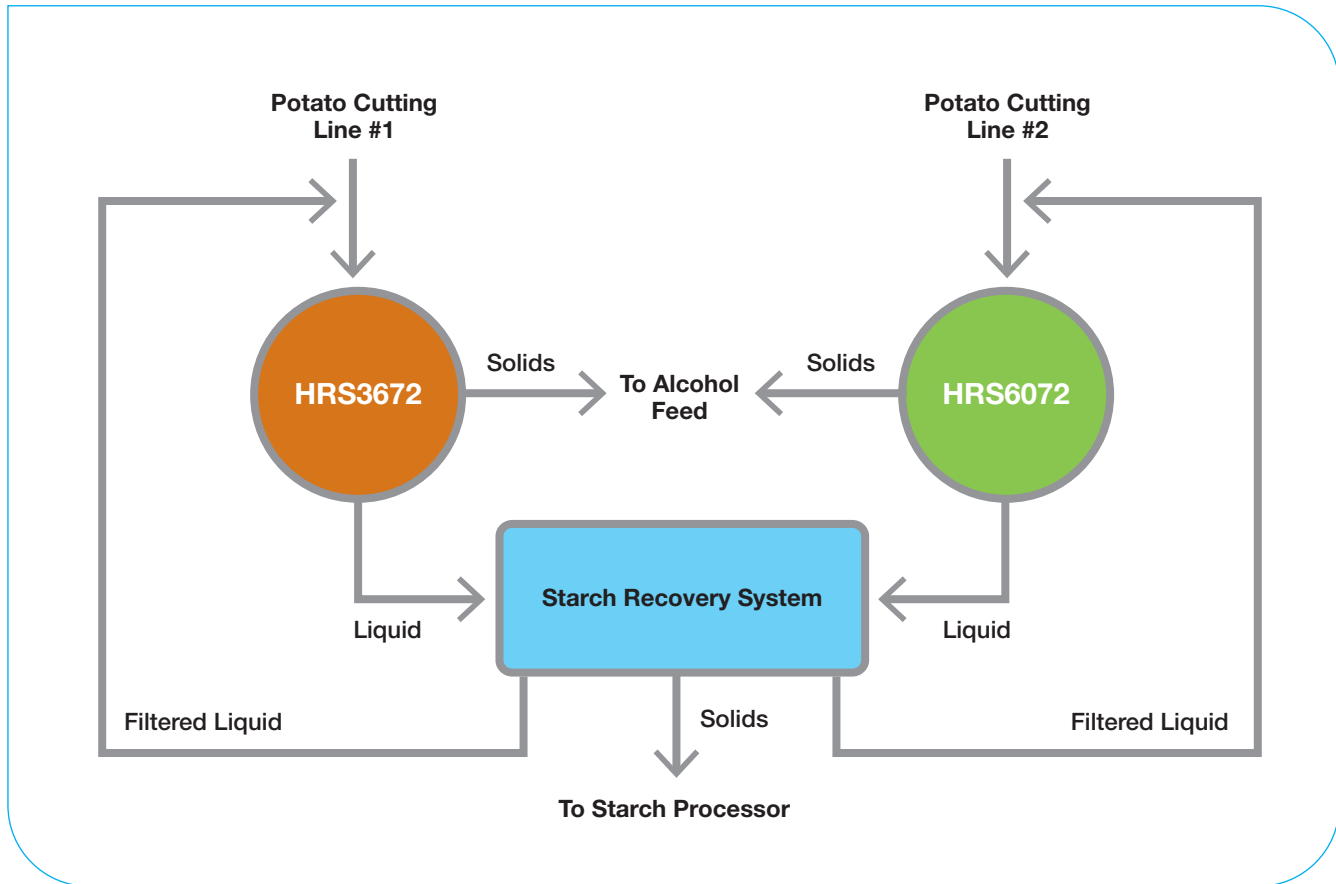
The Rotoshear® screen has a manual spray bar that allows cleaning to be performed as required using flume water.

The second cutting line is equipped with a Rotoshear® screen, Model HRS6072 x .040". This Rotoshear® screen handles up to 2,500 GPM (568 M3/H).

Results

Both Rotoshear® screens effectively remove the coarse potato chunks and prevent solids from plugging the system. Solids are removed at 20% dry weight. No further dewatering of solids is required in this application. Potato water and suspended potato solids, technically called “potato whitewater,” pass through starch cyclones where they

become a highly concentrated solution of water and starch. The filtered water is returned to the closed loop system while the starch concentrate proceeds through additional processing steps to make it suitable for sale to the starch processor. This is achieved with the purchase of another screen for their newest plant. ■



DESIGN DATA

Potato Cutting Line

Rotoshear®, Model HRS3672 x .040" - Peak flow 1,200 GPM

Rotoshear®, Model HRS6072 x .040" - Peak flow 2,500 GPM



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