

CASE STUDY

Rotoshear®
Delmarva Protein (Tyson Foods)



Costs less in the long run

Overview

There's more to the cost of a screen than meets the eye. Original equipment cost is only part of the equation. Operation, maintenance, downtime and equipment lifespan are all factors to consider when purchasing screening equipment.

In fact, Delmarva Protein, a rendering division of Tyson Foods, Inc., located in Temperanceville, VA, tested Hycor Rotoshear units on its pressate and hot tallow lines and decided that although their existing shaker screens cost less initially, the Rotoshear® screens were a better buy in the long run. In fact, as a result of their testing, they installed a Rotoshear® unit on the pressate line and are considering adding one on hot tallow.

Pressate line

The pressate line screen had to handle liquid from the precooker and a press, at a flow of about 25-35 GPM. Before the Rotoshear® test unit was installed, there were two shaker screens on line, one for the precooker and the other for the press line. These shaker screens were quite maintenance intensive and in fact, were responsible for twenty hours of downtime in one week alone.

Results

One single, automatic rotary Rotoshear® screen handled the entire flow. The renderer, with the prospect of having only one screen,

and of minimizing maintenance, the hot tallow to reduce the load on the centrifuge.

The screened solids are returned to the expellor press and the filtered tallow goes on to the centrifuge for final clarification.

Hot Tallow Line

The Rotoshear® test unit handled a flow of 25 GPM from the cooker's percolator line and about 8-10 GPM from the expellor press. The Rotoshear® screen for hot tallow applications is a heavy duty stainless steel unit, specially treated to withstand the high heat of the tallow, estimated to be about 210°F.

Basically, its job was to remove solids and burnt particles from the hot tallow to reduce the load on the centrifuge.

Results

The Rotoshear® screen, with its fine openings, captured more solids than the shaker screen. With fewer particles to handle, the centrifuge's performance also improved and the final oil became cleaner.

The Rotoshear® screen also required less attention than the shaker screen. There was not downtime for unscheduled maintenance... no overflowing, and no mess.

Can you afford a shaker screen?

Operating costs are often taken for granted, and downtime shrugged off as an aggravation. The fact is, however, that these two variables can add significant cost to your operation:

- Repair parts averaged \$567 per month. This amounts to \$6,804/year for each screen.
- Motors cost \$1800 each, and a shaker screen could require at least 3 change-outs per year.
- It takes two men two hours to replace a motor at \$15 per hour (\$60 in manhours).
- Downtime is estimated at \$24 per minute. Each time a motor needs replacement, it will require 2 hours of downtime – a cost of \$2,800.
- Energy consumption is high on shaker screens. The motor draws 4.5 amps. An estimated 120 workhours per week at \$.065/kwh, totals \$1217/year to operate a shaker screen.

The cost-effective Rotoshear® screen?

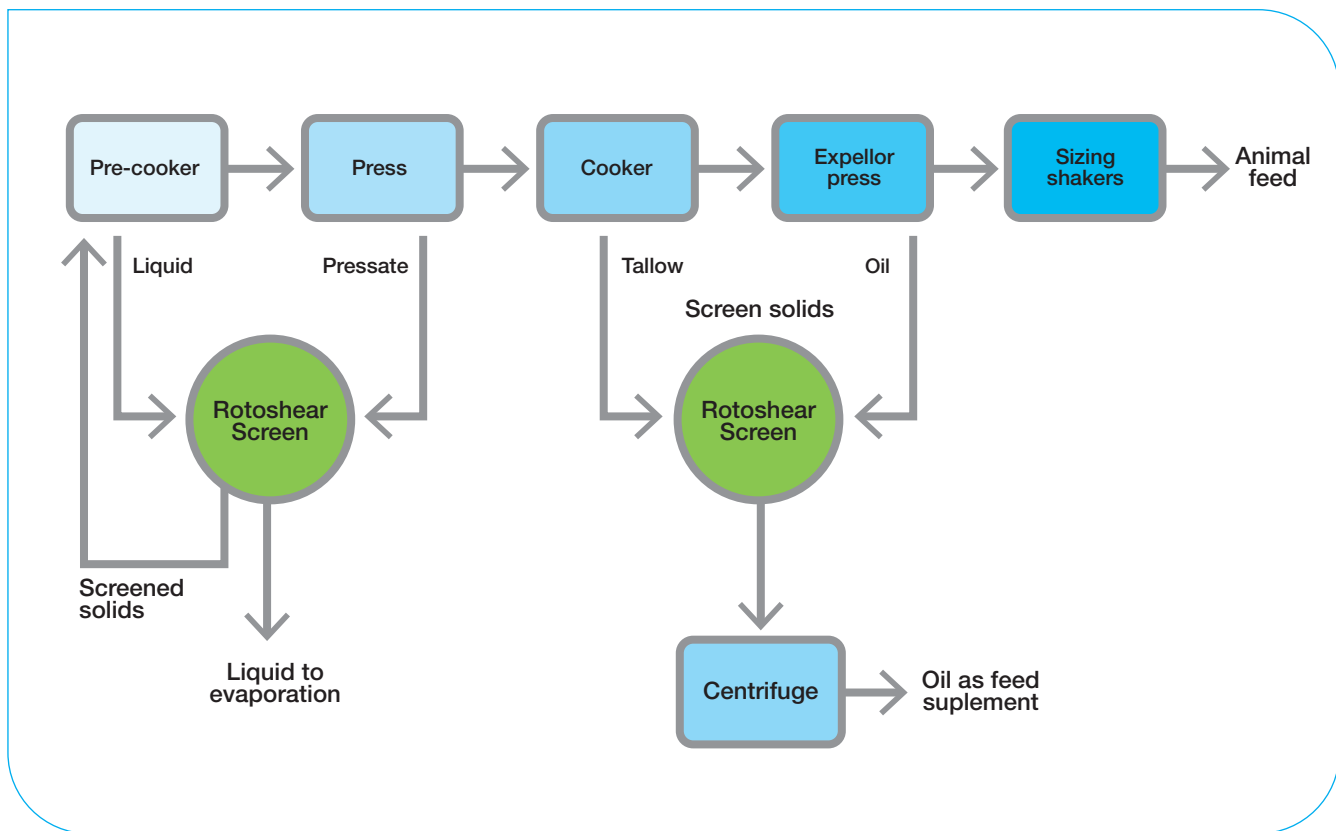
Spare parts cost only about \$1478 a year. If change-out is done during regularly scheduled periods, there will be no production downtime.

- The Rotoshear®'s motor consumes only 1.2 amps. Operating cost, figure at 120 hours/week at \$.065 kwh, is only \$320/year.
- In addition, a properly sized Rotoshear® screen may replace several shaker screens.

Although the initial cost of a shaker screen may be low, any economies are offset by high maintenance and operation costs.

In fact, in two years, the overall cost, including purchase, maintenance and operation, associated with the shaker and the Rotoshear® screen, are equal.

After that, as expenditures become a function of operation and maintenance, the Rotoshear® screen is the least expensive choice by far. ■



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