

Norwegian Potato Processor Turns to ADRFirst™ Solution to Increase Yields and Maximize Product Quality



When the largest potato processor in Norway, Hoff Norske Potetindustrier, began searching for a new sorter for their French fry line last year, they approached Key Technology. They considered several options and selected Key's [Automatic Defect Removal \(ADR®\)](#) system, instead of a traditional sorter, to remove defects from the primary processing line. This new application, called ADRFirst™, increases yields and improves product quality simultaneously.

"We heard that our competitor had been using Key's ADR for several years to remove defects on the sorter's reject stream to recover the good product. Our problem, however, was that we didn't have the space to install an ADR on the reject stream of a sorter," noted Ole Solberg, Assistant Technical Manager at Hoff's Gjøvik plant.

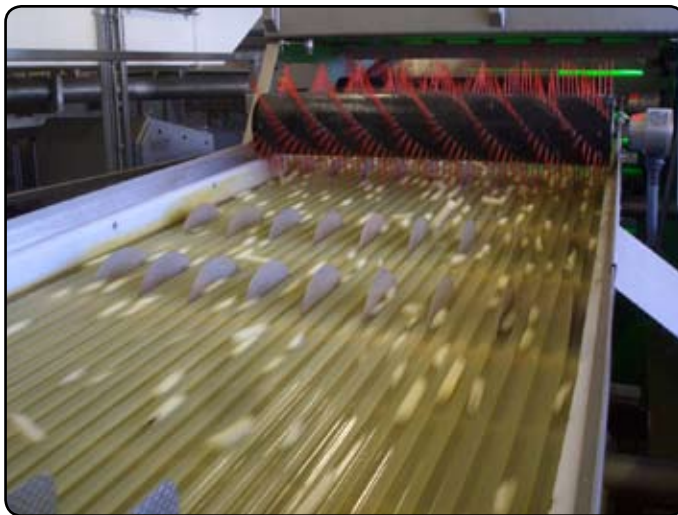
Hoff analyzed the costs and benefits of three options - upgrading the existing sorter, installing a new sorter, and replacing the old sorter with the ADRFirst solution. Despite the higher capital cost, the ADRFirst solution offered the best



return on investment due to a dramatic increase in yields. A six-month payback was projected based on installing Key's ADR® 4 on Hoff's two-ton per hour production line.

"Having used ADR for about nine months now, we've found the maximum performance of the system far exceeds our expectations," said Solberg. "In the past, we had to push our sorter to the limit to achieve our quality objectives. With ADR, we exactly match our required end-quality specifications and we've improved our yields while doing so."

ADR 4 uses a belt conveyor, LED light source, Vis/IR (visible infrared) cameras, a patented rotary cutter with air-actuated knives, and [Iso-Flo® vibratory conveyor](#) to align, singulate, inspect, and trim defects from peeled and peel-on French fries and remove the defects from the product stream. Unlike traditional sorters, which remove the entire potato strip when defects are identified, ADR cuts the strip and removes only the defect.



French fry lines using traditional sorters lose product to the sorter's reject stream. If an ADR is located on the sorter's reject stream to recover good product, seasonal overloading often compromises quality and reduces yields or necessitates a reduction in production rates. The ADRFirst solution addresses these common problems. But, due to space limitations, Hoff had been operating their old sorter without an ADR on the reject stream, causing them to lose high-value potato strips to low-value waste destined for alcohol production.



At Hoff, the increase in yields drives the quick payback on the ADRFirst solution, but improved product quality is another important benefit. Compared to traditional lines that feature a sorter with an ADR system on the sorter's reject stream, which tend to remove 65 to 75 percent of the defects, the ADRFirst solution removes more than 90 percent of the defects without reducing yields. This allows processors to match high quality specifications while increasing yields.

"Another important advantage of the ADR system comes from its [Smart Cutting](#) feature. When we're producing single serve packages of 130 grams, the ADR is programmed to cut longer potato strips into shorter pieces to fit into the smaller bags," said Solberg. "We used to have problems sealing bags when fries that were too long for the bag reached the packaging station. Now, we rely on ADR to match our desired length profile for each particular package."

By preprogramming the ADR for various products, Hoff can easily match the length and quality that is specified by each customer. Changeovers are achieved in less than one minute on the ADR system via the color touchscreen user interface. No change parts or mechanical adjustments are required.

"It's easy to produce near-perfect product with Key's ADR," concluded Solberg. "At Hoff, we devote a great deal of attention in the field and in the plant to making perfect potatoes. Installing the ADRFirst solution is just one example of our dedication to quality."

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