

# POTATO PROCESSING

I N T E R N A T I O N A L

Supporting the potato industry worldwide

Issue 6 • Volume 33 • 2025



## Process

The Invisible Engine of Fry Quality: A Look at Modern Filtration Systems



## Spotlight

Engineering Resilience: The Strategic Playbook for Global Potato Processors

## Ingredients

Advanced Starch Engineering Targets Adhesion and Crispness in Fry Coatings

visit [potatobusiness.com](https://potatobusiness.com) incorporating our digital magazine

# Hydrocutting and Urschel Knives



Alan Major

Hydrocutting employs pressurized water to shoot potatoes through a knife block comprised of sharp blades. The style of knife, usually crinkle or flat, and configuration of the head controls the type of cut usually wedges or strips. The benefit of hydrocutting is the massive volume of potatoes that can be processed efficiently and quickly. Urschel manufactures a wide range of popular knife block configurations in both 3" (76.2 mm) and 4" (101.6 mm) diameters. Urschel sales of waterknife heads continue to exceed expectations.

**By Expert Alan Major, Chief Sales Officer**



**A**nother benefit of a hydrocutting system is the ability to swap out knife blocks or waterknife heads quickly to change the cut style or as knives become blunt. Waterknives should be razor sharp to provide the best end-product. With Urschel expertise in knife manufacturing, Urschel waterknife heads are both ruggedly durable while maintaining incredible sharpness at the blade edge. Hydrocutting is popular for fries and wedges. Potatoes should be presorted and categorized in order to promote controlled production of SKUs. Each inlet should be assigned a consistent, defined agenda based on presorted potatoes in order to produce the most consistent yield.



Pulse Electric Field treatment may also be employed to promote smooth, even cuts. Depend on Urschel knife blocks to support hydrocutting efforts.

### CUTTING MACHINERY

Urschel has been fortunate to grow alongside the potato processing industry to continue to meet the needs of this constantly changing market. Urschel supports processors with hydrocutting through manufacturing precision, durable waterknife heads. Urschel also supports processors globally by manufacturing precision, high-capacity potato cutting machinery. While hydrocutting works well for some products and processors, other processors prefer the versatility and flexibility Urschel cutting machinery delivers. In the strip cutting/french fry/dicing area, many Urschel dicers are available depending on customer objectives. The DiveraCut 2110A® Dicer (DCA), by Urschel, is primarily the go-to machine for dices and crinkle french fries. The machine provides exacting cuts at high capacity. The DCA is manufactured for rugged production environments. Customers appreciate the long runtimes the machine delivers. Ease of use is another feature, noted by many processors. Handled, built-in circular knife carriage, removeable, slide-in slicing knife, and dial-in slicing contribute to a smooth flow of operation. Processors view this as a reliable, dependable machine that fits their production requirements. The DCA may be outfitted with either a 5 or 10 HP (3.7 or 7.5 kW) motor up to 90 hertz with supported heavy-duty components/gearing to obtain unsurpassed capacities. The DCA provides slices, dices, or strip cuts, so a 1-, 2-, or 3-dimensional cut compared to hydrocutting systems. Most potato processors will not need to run at such high speeds/capacities because the rest of the line may not be able to keep up with the product coming off of the Urschel machine, but this option is available for some of our leading, 'super processors' who employ multiple lines and partner

with Urschel to keep their lines running smoothly.

For efficiency in terms of price point, small-to-medium processors may benefit from the DiveraCut Sprint® or Sprint 2® Dicers. Both offer smart, compact cutting zones for optimal dices and strips as lower cost alternatives for processors with one-, two-, or three-dimensional cutting options, along with many of the same added benefit built-ins as the larger volume DiveraCut 2110A. Oftentimes, processing houses begin with smaller machines, such as one of these, to deliver volumes of precise cuts to their customers. As the processing house gains a positive reputation it either continues to build a number of small lines, or upgrades to larger equipment via trade-in opportunities. Many processors choose the DCA or smaller Sprint 2 to fit into their production line and think a three-dimensional machine fits their objectives and product SKUs more effectively than a high-volume hydrocutting system. The Model CC remains the preferred potato chip slicer among processors worldwide, outselling all competitor brands by a substantial margin. In many countries, this slicer is responsible for the largest percentage of the market of all high capacity volume, commercially processed potato chips. Hydrocutting systems are not able to deliver consistent, thin slices required for chip manufacturing. Introduced by Urschel in 1959, the original has undergone vast improvements throughout its history, while the operating principle has withstood the test of time. This slicer was created specifically for the commercial potato chip industry. The 'CC' originally stood for 'Chip Cutter'. Urschel recently introduced the patented RockRepeller™ Impeller, exclusively designed by Urschel to assist Urschel CC Slicer customers to increase line flow rates and increase overall cost-savings. The machine also shreds potatoes for hash browns, slices for thicker potato products, and julienne strips/sticks offering versatility not found in hydrocutting. The CC is



viewed as an integral part of the potato chipping processing line. Processors prefer this slicer because of the precision slices that equate to even fry times to maximize profits. Both regional chippers and the bigger, global companies purchase this slicer for ease of use to efficiently process quality cuts with minimal maintenance. The CC has a new laser frame – a new bold, improved design that delivers increased sanitation and flexibility. A new machine, the CCLL (Chip Cutter Large Lattice) Slicer produces high capacity, intricate lattice potato products that would not be possible in a hydrocutting system. Related to other types of potato cutting machinery, elongated potatoes are commonly sliced by the E Translicer® Cutter for final or

precut product and all types of particle size reduction applications via the Comitrol® Processor line, including potato flake applications. Particle size reduction is not available via hydrocutting systems. The abundance of reduction heads and impellers, provided by the Comitrol, contributes to the success of many processors with the ability to reduce down to micro-dimensions. Customers who purchase the Comitrol appreciate the ease of use and value-added SKUs they are able to produce. In a recent expansion, Urschel built a mini-production environment whereby customers may run multi-step processes. This is available at the global headquarters in Chesterton, Indiana, U.S.A. Things are changing rapidly in the

world. Adapting to the marketplace is vital. Customers are always looking for an advantage, whether quality-wise, a unique product, ease of operation for workers, and the comfort level that the supplier will be there when things are not going as planned. Cutting efficiencies, yields, cost per pound of product is what processors are looking to improve as well as product quality, sanitary aspects, and reduction in manpower and technical expertise required to run the processes and machines for cutting. Whether a processor chooses a hydrocutting system or an Urschel cutting machine, rest assured Urschel global support of sales and service will be there to assist. •