

FEATURED SOLUTION | CONVEYOR SYSTEMS



A Helix-Upender Twist-Conveyor for precision product rotation by Multi-Conveyor. © 2025 Multi-Conveyor

PRODUCT REORIENTATION TECHNOLOGY

PRECISION PRODUCT ORIENTATION SHOULD BE SIMPLE AND SEAMLESS

By Joseph "Joe" Miller, Operations Manager/Owner, Multi-Conveyor

Product change in direction, rotation, orientation or manipulation on any packaging line should not be daunting. These operations may be called for to feed cartoners, case packers, bundlers, robotic pick and place and palletizers downstream. This brief overview calls out both uncomplicated and more complex means of achieving your goal.

Most requested are 90° product turners including cost-effective fixed, removable or pneumatic bump turns; pneumatic product pushers; dual lane speed differential product turners; and activated or integrated roller belting.

Bump turns use an adjustable, fixed or removable bump arm that's positioned along the conveyor to naturally guide product to cause a 90° change in direction — especially common in lower-rate, minimal product changeover applications. Pneumatically controlled bump turns offer turning of selective products, while others continue without turning.

More versatile box-in-box pneumatic product pushers achieve a rapid 90° redirect, adaptive for a wide variety of product sizes, weights and rates. Pop-up transfers engage a vertical belt transfer (U.B.T.),

with urethane belting to also transfer at 90° and are common for box and case orientation from narrow to wide edge leading or vice versa.

Unique dual-lane product tuners use common sense side-by-side conveyor belts running at different speeds that cause rotation to the specific degree required. Adjustments in speeds create adequate gap between products, ensuring accurate rotation without product collision.

Some prefer a more sophisticated integrated or angled roller belting technology that relies on plastic belts with embedded rollers that can passively or actively alter product direction at a 90-degree angle, from side-to-side or in variable degree rotation. Roller belting is popular in pallet-layer forming applications.

Reorientation embraces modest to complex devices from natural waterfall drops or gravity C-Chutes to more complex C-configuration grippers; powered or non-powered star wheels; helical upenders (aka twist conveyor); knock down rails; and custom box or case flipping devices (to name a few). These may commonly be used to facilitate orientations for ink-jet printers, labels, hand and automated case packing. Products can range from cartons, cases, pouches, bags,



A 90 degree wide to narrow edge product pusher by Multi-Conveyor. © 2025 Multi-Conveyor



A toolless manual-removable Bump-Turn-Assembly with ARB assist by Multi-Conveyor. © 2025 Multi-Conveyor



180-degree-gravity C-Chute-case-reorientation by Multi-Conveyor. © 2025 Multi-Conveyor

wrapped trays, bundles, cans, bottles and more. Size, weight, dimensions and line speeds are critical for smooth transition.

Gravity or back pressure facilitate reorientation using cost-conscious guiderail assisted waterfalls, knockdown rails or C-chutes. These and other lower budget options are perfect gentle product up-turn or downturn solutions at angles up to a full 180° and back again, alleviating extensive electrical or pneumatic intervention.

Powered arm upenders take product that was positioned to extend

over one side of the conveyor where it then literally moves up an 'arm' device to transfer from lying down to upright position.

Helix upenders twist product using two table-top style chains, set 90 degrees to each other, simultaneously twisting at a consistent angle over the length of the conveyor causing the desired rotation of 90° or 180°. These units are capable of handling multiple size products without changeover.

C-Grippers and S-Grippers gently hug product through the up-ending or elevation change process. Grippers employ neoprene gripper bulb chains. Starwheels can be back pressure driven or motorized, using a pocketed wheel to capture, 180-degree rotate and return up-ended product to the line.

Features and Options

Features and options that should be factored into any of the product reorientation suggestions above may include, but are not limited to:

- Common sense approach
- Can be designed around existing or new conveyor
- Nominal footprint
- Custom configurations for restricted layouts
- Minimal adjustments
- Toolless or removable device options
- Independent VFD capable motors
- Quick motor disconnects
- Complete controls (including HMI interface and servos)
- OEM communications between equipment
- Optional: VFDs, traffic clamp stops, e-stops, sensors, etc.
- Stainless steel or mild steel construction
- Agency specific sanitary mandates (food safety)
- Safety operator guarding
- Requires minimal maintenance
- Factors in future growth

Working in Tandem

Intricate packaging lines oftentimes require incorporating several devices or conveyor technologies to work in tandem. Multi-Conveyor recently designed, engineered, built and shipped a conveyor system that required a right angle pop-up transfer; a pneumatic actuated carton cross push assembly with three (3) interchangeable face plates for (3) separate size adjustments; and a post-shrink-wrap waterfall side transfer that fed a tool-less adjustable bump turn assembly.

Production lines running multiple products may have a need to completely bypass a device, allowing product to flow through without manipulation when reorientation is not required. Removable devices, such as bump turn arms, can be toolless, retractable to lift out of the way, or straightforward one-pin-pull approach. For electrically controlled devices, a simplistic "pass" or "transfer" toggle switch can be built into the control system for optimum flexibility.

Bottom line? Product orientation on your line should not be stressful. Take excess complexity out of the equation. Embrace your precision reorientation with a commonsense approach. ■

About the Author

For nearly three decades, Joe Miller has been at the helm of Multi-Conveyor, morphing the focus from conveying paper products into an industry-leading packaging conveyor systems designer manufacturer, for food, beverage, pharma, industrial, household, pet, personal care products and more. Visit: <https://www.multi-conveyor.com>

