

CUSTOMIZABLE



LONG  
LENGTH



CONTINUOUS  
AUTOMATION



LONG  
LIFE

# HYBRID ACTUATOR DESIGN

## Packaging Machinery - Material Handling

**Custom designed actuator provides increased stability for heavy loads**

### CUSTOMER & APPLICATION:

#### TRIM PRESS AUTOMATION SYSTEM FOR THE COUNTING AND BAGGING OF CUPS AND LIDS

DJS Systems, located in Homer, MI, manufactures advanced automation and packaging machinery for a variety of applications, including for the production of disposable food containers such as cups and lids.

Automated production lines like these require dedicated machinery to enable high volume production. DJS' Trim Press Automation (TPA) solution is adjustable to accommodate a variety of bundle quantities as it packages products that are output from a trim press.

### CHALLENGE:

#### INCREASE IN END-OF-ARM WEIGHT NEEDED A SOLUTION THAT PROVIDED AN INCREASE IN SYSTEM REQUIREMENTS

To orient the products from the conveyor into finished bundles, the TPA was equipped with an overhead rotary end-of-arm mechanism that can shift in weight and speed based on need. However, this end-of-arm would become unstable and wobble at high speeds and heavier weights, so DJS and the Bishop-Wisecarver team collaborated and brainstormed a customized solution that would:

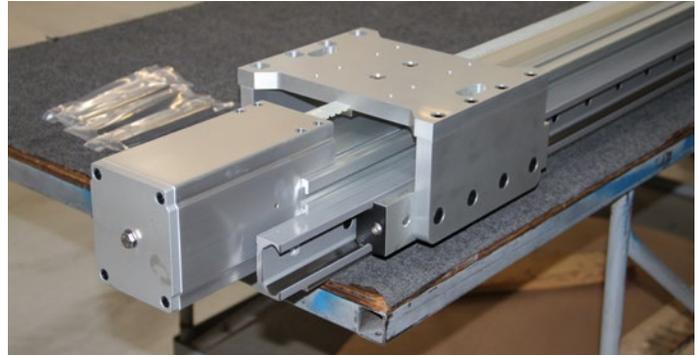
- Improve stability, precision and durability
- Handle increased payloads
- Easy maintenance and easy replacement
- Reduction of components for simplified assembly

*"Only with Bishop-Wisecarver can we get exactly what we need, when we need it and know that it will work reliably for the long term."*

- Customer Service Engineer, DJS Systems



**Standard LoPro® Belt Driven Actuator**



**Custom Designed Hybrid LoPro®/UtiliTrak® Actuator**

## **SOLUTION:**

### **OUR DEEP PRODUCT PORTFOLIO AND EXPERTISE ENABLED UNIQUE INGENUITY IN CUSTOMIZATION**

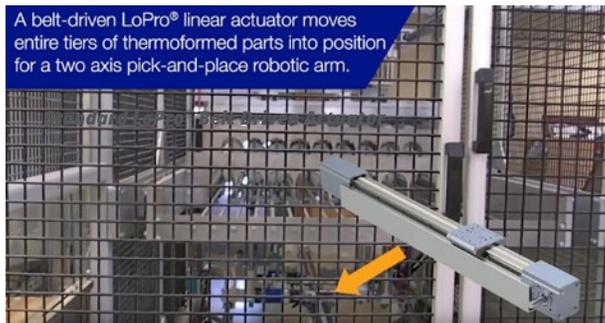
Collaborating directly with the customer DJS Systems, our experienced design engineers at Bishop-Wisecarver used ingenuity, engineering expertise and deep knowledge of other product lines to create a custom hybrid solution. DJS had been using the Bishop-Wisecarver standard LoPro® belt driven actuator with t-slot aluminum support beam in the previous applications. For the new application to solve the increase in end-of-arm weight, Bishop-Wisecarver replaced the wheel plate and track plate assemblies with a pair of UtiliTrak® size 3, 90-degree vee linear guide tracks and 5-wheel plate assemblies. Custom aluminum parts were made to connect the pair of wheel plates to the drive belt, resulting in a new motion system.

## **CHALLENGE SOLVED:**

### **CUSTOM HYBRID ACTUATOR SOLUTION THAT IS SMOOTH AND RELIABLE**

The new hybrid LoPro®/UtiliTrak® design significantly increased the overall integrity of the overhead actuator axis, with reduced complexity due to fewer component parts with substantially higher axial capacity and pitch moment capacity. The number of guide wheel bearings increased and they are oriented in their ideal position with applied radial loads.

Additionally, the UtiliTrak® linear guide tracks are hardened and precision ground on the vee running surfaces for very smooth and reliable motion that is suitable for the continuous duty cycles that are necessary on production machinery.



**Watch the Video**

## **QUANTIFIABLE RESULTS:**

### **421%+ IN AXIAL CAPACITY, 300%+ IN PITCH MOMENT CAPACITY**

Through smart collaboration and resourceful ingenuity, the team at Bishop-Wisecarver created a custom solution for DJS Systems that not only achieved every performance objective (improved stability and precision, regardless of payload), but also achieves simplified assembly due to fewer components and easy maintenance and replacement down the road.

The new hybrid actuator design provides 421% more axial capacity and 300% more pitch moment capacity than the previous standard LoPro actuator for the overhead transfer axis and allows for fewer component parts in the assembly. The additional guide wheels oriented in the radial direction achieves the higher level of rigidity and smoothness.

Bishop-Wisecarver's relentless ingenuity, deep experience and wide product portfolio consistently enable the creation of suitable solutions for the toughest automation challenges—including yours.

*"[BW's] customer support teams are absolutely phenomenal, often bending over backwards to help us solve a problem, figure out what we need to get a new production line up and running quickly, or getting us critical products at a moment's notice."*

- Customer Service Engineer, DJS Systems

**CONTACT US TO DISCUSS YOUR SPECIFIC GUIDED MOTION NEEDS**

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