

case study

EXPERIENCED
Concepts Inc.

eci SpinnOmatic™

Revolutionizing Orbital Forming with Servo-Driven Technology



THE CHALLENGE

Traditional orbital forming technology relied on pneumatic or hydraulic systems that required constant lubrication and maintenance. These systems limited speed, accuracy, and data tracking while adding complexity to rebuilds and servicing.

Our team set out to create a new generation of orbital forming one that eliminated external hydraulic or pneumatic sources, simplified maintenance, and set a new benchmark for precision and efficiency. The goal was to be the first in the industry to deliver a servo-driven orbital forming unit that would transform how manufacturers approach assembly.

THE APPROACH

The engineering team at Experienced Concepts Inc. and eci SpinnOmatic designed a **self-contained servo orbital forming system** that removed the traditional limitations of hydraulic and pneumatic designs.

Key innovations included:

- A **larger HP servo motor** with VFD speed adjustment, allowing compatibility with multiple forming head combinations.
- A **built-in motor encoder** to track stroke distance with extreme precision.
- **Feedback torque values** integrated directly from the drive, enabling real-time monitoring of forming force.
- A design focused on **ease of service**, allowing simple removal of the spindle, motor, and bushings for rebuilds.

THE SOLUTION

The result was a **servo orbital forming head** that is:

- Self-contained, requiring no external devices for stroke or distance monitoring.
- Highly accurate and extremely fast, delivering unmatched cycle times.
- Efficient, with simplified design and reduced downtime for maintenance.

THE RESULTS

- **Smooth forming process** with significantly reduced variation.
- **Extremely accurate form heights** with repeatability part to part.
- **High/low height and high/low force tracking** for precise process control.
- **Out-of-spec tolerance rejection and data collection** for quality assurance.
- **Simplified maintenance** through modular, easy-to-remove components.

IMPACT ON THE INDUSTRY

This new servo-driven design sets a new standard for orbital forming. By eliminating hydraulics, pneumatics, and lubrication systems, it provides manufacturers with a faster, more accurate, and more reliable solution. The innovation has positioned eci SpinnOmatic as the leader of the **next-generation orbital forming technology**.