



## CASE STUDY: CUSTOM INNOVATION FOR A LEADING AGRICULTURAL EQUIPMENT MANUFACTURER

### THE CHALLENGE

A prominent manufacturer of agricultural equipment—a long-standing customer of HPS—faced a critical challenge with a large V-Ring Face Seal/Excluder. The original design, with a diameter exceeding 36 inches and made from NBR, featured lip protrusions intended to reduce friction and block debris. However, upon reviewing the provided engineering drawings, HPS engineers identified potential functional shortcomings. These issues could lead to premature seal failure, impacting the customer's product performance and reputation.

### THE SOLUTION

Leveraging decades of expertise in seal design, HPS's senior applications engineer quickly identified that the standard design wouldn't meet the customer's stringent requirements. Taking a proactive approach, the team proposed a complete redesign rather than minor modifications.

#### **Collaboration for Clarity:**

HPS engaged with the customer's engineering team to understand the operational challenges in detail.

Using CAD drawings of the mating components and comprehensive application data, HPS engineers crafted a solution tailored to the customer's unique requirements.

#### **Innovative Design Transformation:**

The initial standard V-Ring design evolved into a custom-engineered solution using advanced urethane material.

Friction-reducing pads were integrated, while a novel accordion-style spring-loading mechanism eliminated the need for an external energizer.

This innovative geometry enhanced durability and improved debris exclusion.

#### **Rapid Prototyping and Validation:**

A prototype was quickly produced to test fit, assembly ease, and seal performance.

Rigorous testing ensured continuous contact with all mating surfaces, verifying functionality under real-world conditions.

### THE RESULTS

The collaborative design-to-production process culminated in a groundbreaking solution that exceeded customer expectations:

**Enhanced Performance:** The custom seal delivered superior durability and reliability in harsh agricultural environments.

**Streamlined Production:** The redesigned seal was approved for full-scale production, cementing HPS as a trusted Tier-1 supplier for this OEM.

**Customer Satisfaction:** The customer not only resolved their unique problem but gained a competitive edge with an innovative seal design co-developed with HPS.

This project exemplifies HPS's commitment to solving complex engineering challenges through innovation, collaboration, and precision. Our ability to transform a potential failure into a long-term success reinforces why leading manufacturers trust HPS as their go-to partner for critical sealing solutions.

### WHY CHOOSE HPS?

This case is just one example of how HPS combines technical expertise, innovation, and customer collaboration to deliver exceptional results. If your company faces unique sealing challenges, let us help you engineer the right solution—one that drives performance, reliability, and success.

