

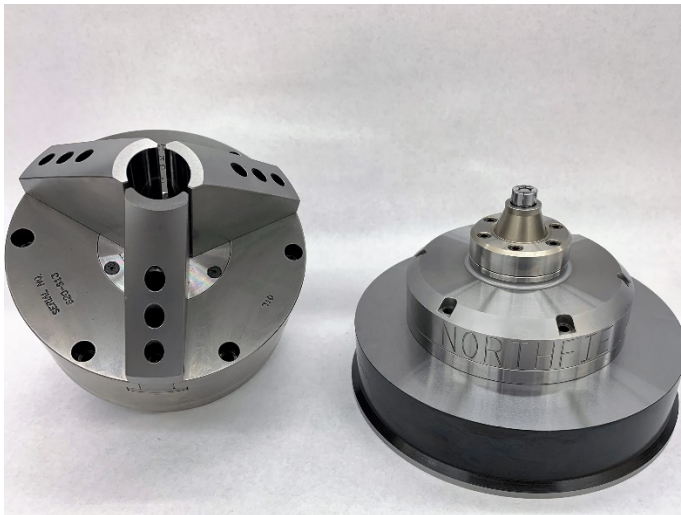
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Northfield Precision Engineering Showcases Custom Workholding Solutions at SHOT SHOW  
Firearms Industry Trade Show

Northfield Precision Engineering, a leader in custom workholding solutions, is proud to showcase two remarkable projects highlighting our expertise and innovation in the field of precision machining.

These two projects exemplify Northfield Precision Engineering's commitment to delivering innovative, custom workholding solutions tailored to our customers' specific needs. Visit them at [Booth Number 51210](#) at SHOT SHOW Supplier showcase to learn more about their capabilities and how they can elevate your machining processes.

**Project 1: High Precision Bores and Finish Grinding**



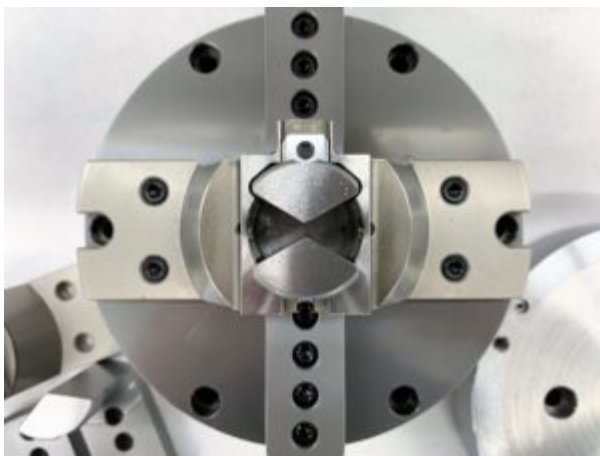
In collaboration with an international OEM supplier renowned for producing the world's most accurate precision rifle barrels, Northfield Precision Engineering undertook the challenge of perfecting outer diameter clamping to grind bores in high precision bolt carriers for modern sport rifles.

**Brief:** The project involved outer diameter clamping for grinding bores and inner diameter clamping for finish grinding the outer diameter.

**Challenges:** The primary challenges included accommodating extended part length and completing a second finish grinding step without damaging the first.

**Northfield Solution:** To address these challenges, we engineered a custom solution utilizing our expertise in air chucks and collet chucks. For the first operation, we developed a Northfield Model 620 Sliding Jaw Chuck with an extended air cylinder housing to accommodate the long part length. This chuck, equipped with hardened and ground top jaws, ensured precise clamping on the rough outer diameter of the customer's part. Additionally, a custom internal grip collet chuck with a collet diameter of .5232in was employed for finish grinding the outer diameter, ensuring accuracy crucial for the firearm's reliability.

## Project 2: Custom 4th Axis Tooling Package



For the second project, Northfield Precision Engineering was tasked with creating a custom tooling package for mounting on a 4th axis rotary table to hold raw aluminum extruded blanks for finish milling in a single operation.

**Brief:** The objective was to design work holding that seamlessly integrated with the customer's tooling paths.

**Challenges:** Incorporating milling clearances within the axial locator and jaws while ensuring optimal functionality presented a significant challenge.

**Northfield Solution:** Our solution, the Northfield Model 670 2 Jaw Chuck with custom internal grip jaws, addressed the challenges effectively. We engineered a custom axial locator that incorporated milling clearances, utilizing precision grinding and Electro Discharge Machining (EDM) techniques. Furthermore, the design featured a timing block to ensure consistent part loading and orientation during milling operations. The chuck was seamlessly mounted to a 4th axis rotary table using a custom Northfield backported adapter plate, allowing for efficient clamp and unclamp operations.

**About Northfield Precision Engineering:**

Northfield Precision Engineering is a leading provider of custom workholding solutions, specializing in air chucks, collet chucks, and other precision machining accessories. With a focus on innovation and excellence, Northfield Precision Engineering delivers reliable solutions to meet the diverse needs of manufacturers worldwide

Based in Island Park, New York. Founded in 1952, Northfield designs and produces the most accurate custom chucks in the world, guaranteed from 0.0001" (2.5 $\mu$ ) - 0.000010" (0.25 $\mu$ ). Northfield supplies a global customer base across, automotive, aerospace and medical industries.

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