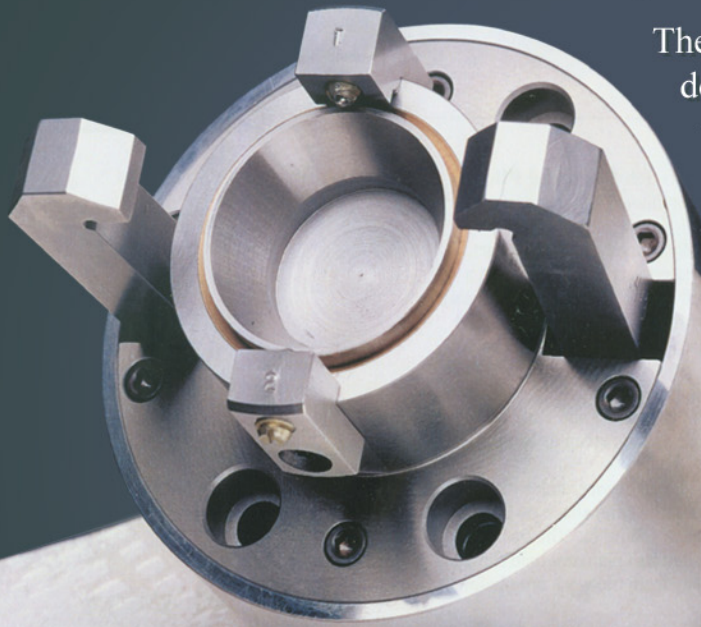
Special Drawbar-Actuated, Pull Down Chuck with Centered Pilot.

Here is a great example of how Northfield's creative engineering helps customers solve tough workholding problems. When a special chuck was needed to hold an unusually shaped auto-motive part, Northfield was asked for ideas. The machining operation was basic, hard turn a straight bore that is case-hardened to 85/63 Rockwell "C". The complicating factor was the shape of the part; it was not round or concentric. The straight bore must be machined concentric to a cone-shaped hub and perpendicular to a larger offset rectangular flange. After reviewing the problem, our chief engineer Paul DeFeo realized that the most accurate way to hold the part was to grip it by the cone and bank off the flange. The question was how, since the cone surface was too steep to be gripped by conventional chuck jaws.



The solution was to design a special drawbar-actuated, pull-down chuck with a spring-loaded funnel-shaped base that was a female version of the cone shape on the part. This base fits into the chuck body with a zero clearance sliding fit. The operator pushes the part down into the funnel, two spring-loaded ball plungers hold the part in place.

This allows the operator to move his hands away from the work area before activating the chuck. Upon actuation, clamping arms swing over and down onto the part's flange. The spring-loaded funnel base picks up the cone for centralization and slides into the chuck as the flange comes to a fixed stop for axial location and clamping. After machining, the arms retract and the part is pushed up and out for easy removal. How is this "not just chucks" approach working? Using our chuck, this application runs 24 hours a day, seven days a week, producing parts with outstanding accuracy and repeatability.

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PULL DOWN CHUCK