



## Case History

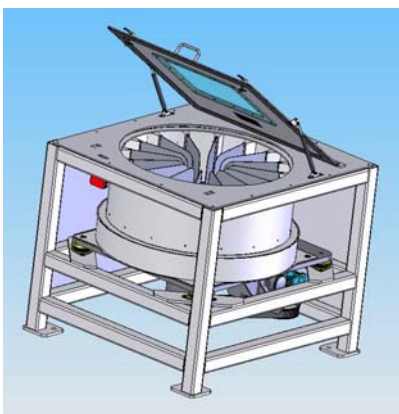
### Custom Centrifuge Test Machine, Centrifugal Testing Equipment, Centrifugal Load Testing, G Force Testing, Spin Testing Equipment, Spin Testing

A prominent defense contractor needed a specialized centrifuge machine to leak test the waterproof lining in Army boots. (16) Sixteen boots can be loaded into the individual pockets and spun under the proper "G" load at one time. The leak test requires spinning the boots in a vertical position for 30 minutes with 400cc of water inside the toe of the boot. Under centrifugal force the water moves from the toe of the boot vertically and creates a complete water layer against the inside of sole of the boot.



US Centrifuge designed the unit using Solid Works 3D modeling software, which generated the necessary 3D computer simulations for the customer to approve the project.

The first unit was then custom fabricated and assembled by US Centrifuge's "Orange-Werks" team. The unit features a heavy-duty structural tube frame, which supports a vibration-isolated floating base plate for the 36" diameter, segmented rotating assembly and spindle pack. A belt driven 5-hp 480VAC gearbox drive motor powers the rotating assembly.



The accompanying control panel features an Allen Bradley PLC based control system to operate and safe guard machine and a color HMI provides all the necessary machine operator functions and information screens. The control panel also features an Allen Bradley Power Flex VFD motor control so the RPM and respective "G" force can be adjusted

for the specific requirements of each boot style. The machine frame is then skinned with aluminum sheet to enclose the rotating assembly and safe guard the unit.

### Boot Spinner Machine Specifications

M/C Speed & Diameter	170 RPM @ 36" making 2-psi of water pressure at the sole of boot
Amount of Water in Each Boot	400cc
Length of Spin	30 minutes
Number of Boots	16



US Centrifuge can custom design and fixture the rotating assembly to suit a variety of component parts and / or finished products.

To learn more about US Centrifuge's custom product testing equipment design and development capabilities, [contact us](#) today!