

Idea bulletin

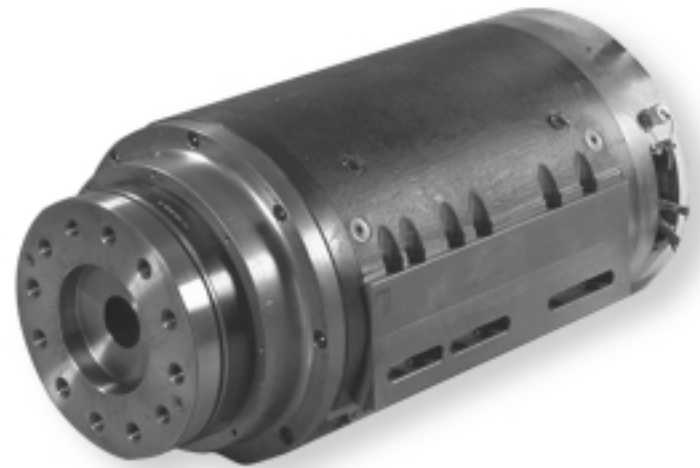
Large motorized machining spindle rebuilt

Speedy domestic spindle service saves time, money and trouble for U.S. machine tool builder

Application

Used in the automotive and heavy equipment industries to hold brake drums, fly wheels, hubs, rotors, differential cases and housings while machining is

performed, these spindles typically produce over 2,000 brake rotors per day, the spindles themselves acting as loading/unloading devices.

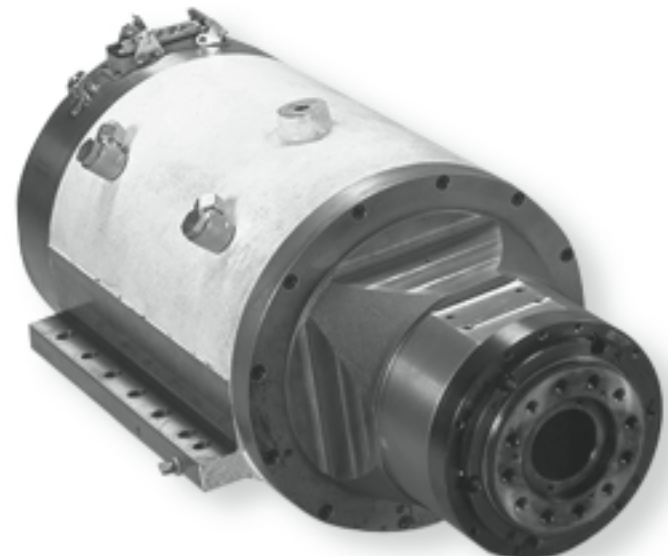


Challenge

The machine tool spindle being used was foreign-made, and servicing the spindles was problematic for domestic installations. Because the spindles were of a proprietary design, spindle rebuild was difficult.

Solution

With complete capabilities to perform both the engineering and the manufacturing required for the spindles' rebuild, Gilman USA's Spindle Service Center was the logical choice for faster, more economical, on-shore rebuilding.

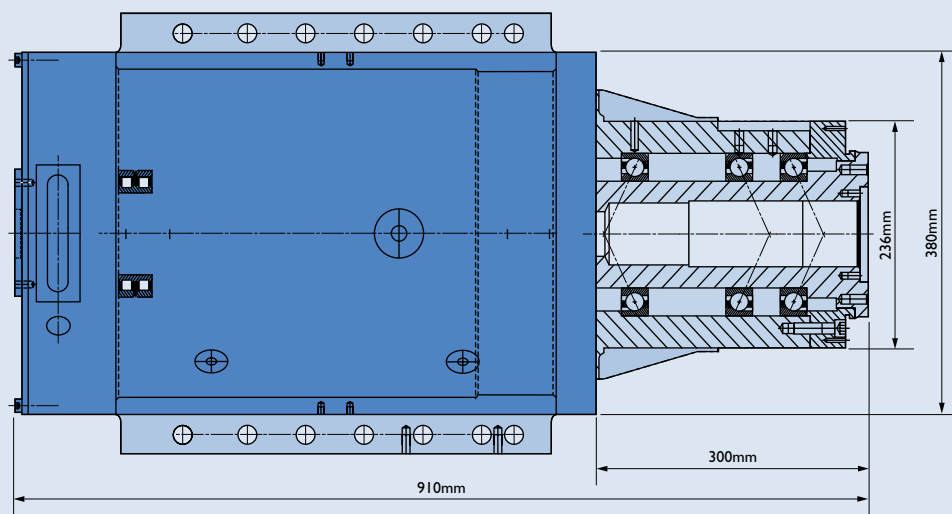


Cost savings

By having Gilman USA's Grafton, WI Spindle Service Center do the work instead of shipping the spindles overseas, the manufacturer realized savings of thousands of dollars per spindle.

Time line

By eliminating the time required to ship overseas, Gilman USA was able to reduce the turnaround time on rebuilt spindles by weeks.



Spindle rebuild process

- Disassembly and inspection of spindles
- Inspect shaft-bearing journal diameters for sizing and concentricity
- Inspect housing-bearing bores for sizing and concentricity
- Remanufacturing spindle parts as necessary and align tolerances to original specifications
- Inspect motor parts and repair
- Each spindle receives a runoff test and carries a new spindle warranty upon leaving the Gilman USA Spindle Service Center

Technical specifications

Weight:	1,050 lbs.
Bearings:	110mm ball bearings - front 85mm cylindrical roller bearings - rear
Max. speed:	4,000 RPM
Operating speed:	3,000 RPM
Max. forces:	Axial load: 2,300N Radial load: 9,000N
Lubrication:	Grease
Running accuracy:	Axial and radial runout < 5 μ m
Balancing quality:	G 2.5
Power (100% operation):	$P_{S1} = 28$ kW between $n=900$ and 4,000 RPM
Torque (100% operation):	$M_{nom S1} = 340$ Nm at $n=900$ RPM