

Keeping the spindle clean

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CNC spindle maintenance is can be a dirty, boring, and often overlooked job. However, a clean spindle is essential for proper taper contact between the spindle and v-flange toolholder.

Build-up of chips, dust, and oil in the spindle can jeopardise taper contact and result in premature wear, repair downtime, and even CNC machine breakdown.

Ultimately, breakdowns cause production to stop and the ensuing costs are very high since no parts are being produced. The most cost-effective way to increase CNC machine productivity is through proper maintenance, ensuring optimal toolholder to spindle contact.

It's important to note that all V-Flange tooling is designed to fit the spindle taper within tolerances of one-tenthousandths (.0001") of an inch. Any debris, in the form of dust, grease, chips, or other contaminant left on the spindle, taper, or flange can cause poor T.I.R. (runout), poor tool life, and poor tolerances.

Recognising that a clean, smooth spindle surface is essential for proper taper contact between the spindle and v-flange toolholder, JM Performance Products, a US manufacturer of CNC mill spindle optimisation products since 2009, has developed its advanced Spindle Cleaner Kit and Spindle Restoration Kit.

The spindle cleaners and spindle restoration tapers are made from anodized aluminium that will not collapse in the spindle during use. They also come with removable handles that can be used with all cleaning and resurfacing head tapers.

Designed to remove loose oil, debris, and other contaminants from CAT and BT spindles in 30, 40, 45, 50, or 60 taper sizes, JMPP's Spindle Cleaner Kit includes: 1 or 2 AT3 precision tapers; removable handles; 16oz bottle of degreaser; fabric cleaning strips; lint free towels and a carrying case.

The Spindle Restoration Kit, designed to remove high spots attributed to debris and rust that has galled to the surface of the spindle and cannot be removed through cleaning, includes: two precision taper restoration heads; two spindle restoration handles; 16oz all-purpose cleaner; four different micron finishes of material strips and a carrying case.

S & S Tool in Conneaut, Ohio, an established specialty CNC machining operation since 1985, had been experiencing ongoing crashes on its five CNC machines. President, Paul Sedmak noticed there were high spots in the spindle which caused the taper to sit unevenly. Seeking a swift solution to avoid repeated shutdowns, which could cost approximately \$6,000 per machine, Sedmak contacted JMPP President, John Stoneback, who made an onsite visit and demonstrated the Spindle Cleaning Kit's simple process.

Mr Stoneback began by cleaning the spindle which was heavily coated with baked on coolant as it had not been cleaned in four or five years. He then began resurfacing the spindle using the taper fitted with 40 Micron aluminium oxide strips.



He had to use the all-purpose cleaner to remove debris, including metal fragments, off the strips, but after about half an hour, he got smooth rotations. At that point, he used new strips to really shine the surface. A final cleaning with the cleaning head and towels left the spindle looking like new.

He says: “When you consider that it would have taken a day to pull the spindle, one or two weeks to regrind it, and yet another day to reinstall the spindle, a few hours of time saved S & S Tool a considerable amount of money in terms of down time and lost production.

“The main purpose of regular spindle maintenance is to ensure that all equipment required for production is operating at 100% efficiency at all times. Therefore, it’s essential to implement a frequent spindle cleaning and restoration maintenance system that operators should conduct at least once per week.”

Mr Sedmak concludes: “The results were readily apparent and we implemented the kit into our maintenance schedule immediately. We’ve been using it for over three years and won’t go back. For a small investment, all of our machines run more efficiently, the tools run truer, and we’re saving on cutter wear.”

JM Performance Products
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Spindle refinishing kit