
Electric Spindle Care and Maintenance

Gerber FastFact # 5044
Supplied by: Technical Hardware Support
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Warm Up:

Applying load to a cold spindle will cause premature failure of bearings. Run the spindle at 9,000 rpm for 10 minutes or until the spindle bearing supports reach about 98 degrees F (body temperature). This allows bearings, supports and shaft to reach their designed dimensions. We recommend that warm-up is part of the machine control software.

Cutting:

Keep down-feed rates less than 20 in/min. for the first 1 mm of cut depth. Ramp to full depth at an angle less than 20 degrees. This minimizes axial force. Above all, avoid "crashes" into the table, fixtures or work.

Tooling:

Keep tools **sharp** to reduce cutting force, heat and to maintain cut quality. Monitor increase in electric current to the spindle to detect loss of tool sharpness. Heat from tools overheats bearings, evaporates essential grease components and lessens bearing life. Maximum outside temperature of bearing supports is **150 degrees F**. Excess heat or dirt will cause tool holders to jam in automatic tool change spindles.

Use only **balanced** tools and tool holders. Rebalance all tools after sharpening. Vibration from unbalanced tools rapidly destroys bearings. The balance standard for tooling is 1.0 g (ANSI 1940/1).

Replace worn, scratched or deformed tool holders and collets to prevent slip (heat), imbalance and run-out. Collet life is usually less than 700 hours with normal use. Ensure collets are tightened to the right torque.

Cleaning:

Keep spindle body, fans and airways clean for proper cooling. Tool tapers, shafts and collets must be scrupulously clean. Minor contamination of collets causes poor quality cuts from tool misalignment, imbalance and slip. Tool slip can lead operators to over-tighten collets and damage threads.

Cool Down:

Allow cooling system (fan, compressed air or liquid) and bearing pressurization (if fitted) to run for 10 minutes after stopping work. This minimizes condensation and contaminants from being drawn back into the bearings.