How It Works: 12K Spindle Cooler

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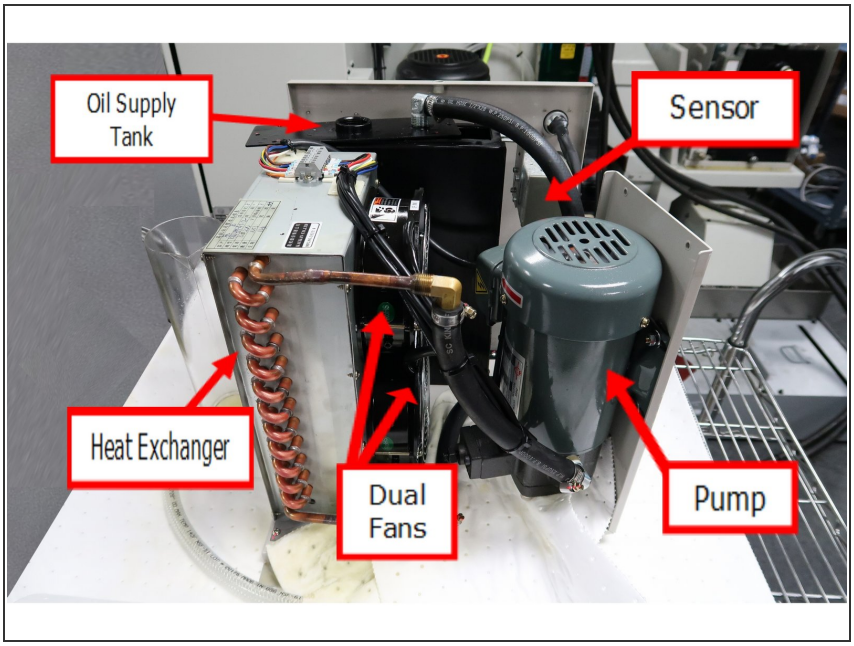


Step 1 — 12K Cooler Overview



- The 12K spindle option is available to shops that need for higher spindle speeds for higher production rates and also for longer contour machining like that used in mold making. Shops may have a small ballnose endmill doing 3-axis movements for hours to create a smooth surface.
- Faster speeds mean then can keep feeds high and still reach the necessary finish requirements.

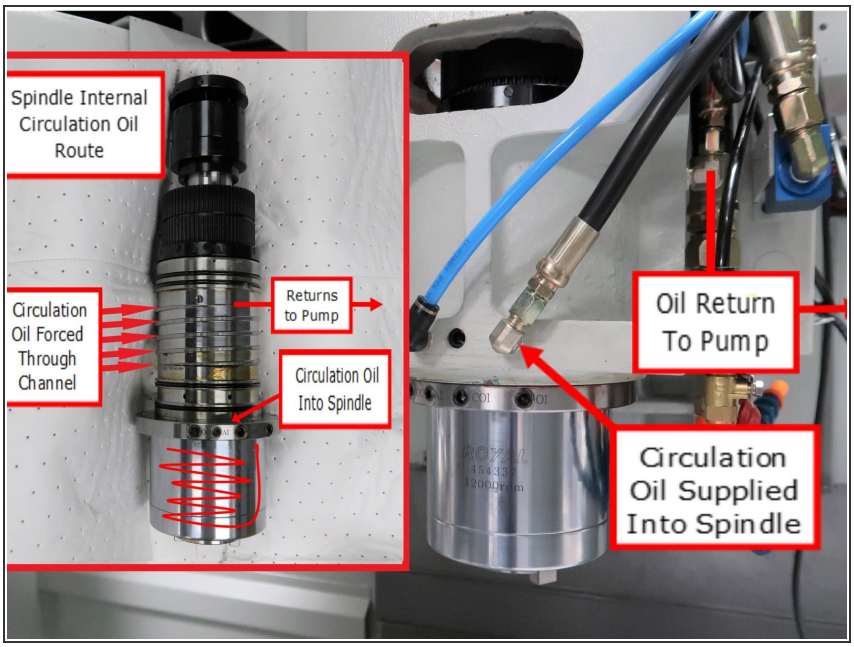
Step 2 — 12K Cooler Components



- The 12K RPM spindle option requires many parts to be changed when compared to the standard 8K spindle. Due to the substantial increase in speed and expected heat generation from increased production capabilities, the TMC requires an additional cooling system for the spindle.
- The oil circulation system works all the time the mill is powered up. The spindle could be used at any time, so the extra lubrication is always available. Circulation oil flows through the spindle out to a heat exchanger that contains a reserve tank, radiator and a pump to keep the fluid in circulation.
- Pressurized hoses provide the transfer of fluid from the heat exchanger to the spindle as well as the return trip. Dual cooling fans cool fluid in the radiator and also cool the pump motor.

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Step 3 — 12K Option Added Spindle Cooling



- Spindle cartridge is shown a couple of layers below the normal installed view. The spindle sheet metal covers have been removed and the inset photo shows the spindle cartridge outside of the casting. To the right of the photo, you see the high-pressure circulation oil lines supplying the fluid to the spindle as well as the return pressure line.
- To the left of the photo the inset detail shows the spindle cartridge out of the casting and allows clear view of the areas in the spindle that get the additional cooling from the 12K option.