

Application Handbook

Woodworking

Harmonic Drive LLC Machining Center Sawing Attachment

- Hollow-shaft actuator

This design example shows another use for the FHA hollow-shaft actuator. In this case, the actuator is used to rotate the sawing attachment of a woodworking machine. The previous solution featured a worm gear, wherein the main spindle motor was attached to the output of the worm gear and the saw blade was connected directly to the main spindle motor. However, there were problems with this solution. Because room had to be left to allow the spindle motor to be rotated, the complete machining area of the machine could not be used. Additionally, the dynamic performance of the axis was limited because the spindle motor had to be rotated with the saw blade.

The new design uses the hollow-shaft of the FHA actuator to connect the main spindle motor to the saw blade. The spindle motor is now static, mounted on a housing that encloses the FHA actuator. The saw blade is connected to a bevel gearbox, which is the only mechanism to be rotated, thus improving the dynamic performance. Furthermore, because the footprint of the new design is much smaller, the available working area of the machine is increased.

