

MARKING TIME WITH WOOD

Gear Technology's bimonthly aberration — gear trivia, humor, weirdness and oddments for the edification and amusement of our readers. Contributions are welcome.

Clocks with wooden gears? In these days of gears made from plastic, steel and exotic materials; it is a little unusual to hear about a practical application for wooden gears. But that is exactly what David Scholl, the owner of Changing Times, a Harlingen, TX, clockmaker, is offering us.

His company specializes in making wooden geared clocks. It is a one-time hobby that Scholl made into a business. "I made my first wooden clock in about 1980," says Scholl. "At the time, I was attending college and working on an Industrial Arts/Business Administration degree. While thumbing through a woodworking magazine, I found an article describing the basic principles involved in clock mechanisms. Eventually, I found the name and address of a company under the direction of R. D. Thomas. Mr. Thomas sold (sells) plans for wooden


geared clocks, so I ordered them and got to work." The clocks he makes today are weight driven and can be made to run from 24 hours up to eight days depending on the drive train.

That drive train is made up of wooden spur gears with involute teeth. These are not little, fine pitched gears, either. "Because wood is less dense than other materials, there is an increased need for structural mass in order to add strength and stability to the gear teeth. Therefore, both for appearance and function, larger DP sizes are used beginning at 10 DP and going up," says Scholl, who adds that the gears are made using modified woodworking equipment. "Table saws have been modified to accept standard milling cutters," he says. "Many jigs and fixtures are needed in order to accommodate the many sizes of gears that we make. The rough cut gears are hand-faced on a wood lathe. Also, larger gears are laminated from up to 18 different pieces of wood and then cut. This is because wooden gears are more susceptible to dimensional changes due to temperature and humidity than are gears made from other materials. This means that warping is a factor to consider. The lamination process minimizes this factor."

The average sized gear has between 30 and 72 teeth. The diameter of a 30-tooth gear with a 7 DP is approximately 4.5 inches. A gear with 72 teeth would have a diameter of 10.5 inches. Pinions start at 8 teeth and are approximately 1.25 inches in diameter. And, according to Scholl, these gears will last. "Because of the low torque and low revolutions-per-minute, these gears should last quite



Wooden Gears. Courtesy of Changing Times. some time." He also adds that no grease or oil is used with the wooden gears. In fact, no lubrication is used on the teeth surfaces at all. "There are ball bearings mounted on the gear arbors in order to reduce start up friction," he says. "This is necessary because, in reality, the clocks stop and restart every second."

Changing Times sells the wooden-gear clocks through local specialty shops, but Scholl plans to open a Web site soon. Until then, if you want more information about Changing Times and its wooden-gear clocks, send e-mail to Scholl at chngtimes@aol.com. 



A wooden geared clock. Courtesy of Changing Times.

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