



POUR ON " FIXTURES: THE EASY WAY TO HOLD FRAGILE PARTS

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Fixturing fragile odd-shaped parts for machining often presents problems. Vibration, distortion and inaccuracy are just some of the difficulties that arise. Fortunately a fixturing compound can sometimes take the place of mechanical holding means to overcome these problems.

An example of one such job is a stainless-steel nozzle assembly for a helicopter turbine engine. Brazed sheet metal vanes span the inner and outer steel bands of the assembly.

Machining the nozzle assembly entails several boring, turning and facing operations on an engine lathe. High speeds and heavy cutting-tool pressures characterize these operations.

Even if it were possible to design a single mechanical fixture to permit machining all surfaces in one setup, these cutting speeds and pressures would cause trouble. Previous attempts at mechanical fixturing led to chatter, part distortion, and hairline cracks in the vanes and low tool life. The alternative of running at low speeds and feeds did away with these drawbacks but drastically reduced production.

FIXTURING COMPOUND IS THE ANSWER

The real "fix" for the problem came in the form of Rigidax fixturing and tooling compound together with a simple mechanical fixture pellets become fluid when heated to 200-2500F.

In fluid condition, the compound pours easily into the nozzle assembly's voids and around vanes. It fills six times more space than its equivalent weight in metal compounds. And at room temperature, the non-toxic, moisture-resistant Rigidax compound solidifies again into a hard, non-contaminating supporting medium that can be machined in the same way as the nozzle.

The fixturing compound makes possible roughing cuts at 0.008 ipr and semifinishing cuts at 0.006 ipr. Depth of cut for semifinishing is 0.020 in. – less for finishing. All these machining parameters are for a 0090-in. thickness on the nozzle. To top it off, the production rate has gone up about 50%.