APPLICATION BULLETIN

APPLICATION: Fan Press Lathe

INDUSTRY: Electric Motor Manufacturing

PRODUCT: Posidyne Clutch/Brakes
**DRIVE REQUIREMENTS:** The Clutch/Brake must start and stop an air chuck which holds an armature and shaft assembly. The armature with shaft is manually loaded into the air chuck and the operator places a plastic fan on the shaft. A hydraulic press ram is stroked, pressing the fan onto the shaft. As the press ram retracts, the spindle is quickly brought up to 1200 RPM. A cutting tool moves past the tips of the fan blades, trimming and balancing the fan. Automatic switching commands the Posidyne to stop, and the operator removes the finished assembly to complete the cycle.

**APPROACH:** The vertical air chuck spindle requires that the drive be vertically mounted. The machine structure restricted the mounting possibilities so that we were required to mount the Posidyne with the output shaft extended up. This resulted in a unique problem. With the input shaft extended down the large four lug input rotor runs completely submerged in oil, with approximately 3/4 HP required to run only the Posidyne, and the thermal build-up (due to churning of oil) decreases the overall thermal capacity of the standard drive.

The overall load inertia reflected to the Posidyne output shaft and the eight cycles per minute rate would not normally dictate a fan-cooling requirement; However, addition of the thermal build-up mentioned above makes fan cooling necessary. To minimize this build-up, the input speed to the Posidyne is reduced to 1200 RPM, which greatly reduces the thermal build-up, and since the model 2-1/2 has ample torque capacity, this results in another highly successful application for the Posidyne Clutch/Brake.

**SEQUENCE:** The complete cycle has an operator load the part and put a fan into position on the shaft. He then activates a two hand-no tie-down circuit which strokes the press, and as the press ram retracts, the Posidyne is signaled to release the brake and engage the clutch, accelerating the armature chuck spindle to 1200 RPM. A cutting tool moves past the fan, trimming the tips of the blades. Upon completion of the trimming, the Posidyne is signaled to release the clutch and engage the brake, stopping the spindle and armature, allowing the operator to unload. This completes the cycle.

**FEATURES:**

- The Posidyne and AC motor drive combination virtually eliminated maintenance on the machine. Previously the electric motor had been burning out every six weeks. At this time the Posidyne has given trouble-free service since August 1978.

- Freedom to adjust actuation air pressures to clutch and brake allows operator to control acceleration and deceleration of the drive.

- By allowing the AC motor to run continuously, an electrical saving is realized over starting the motor, under load, over eight times per minute.