APPLICATION BULLETIN

APPLICATION: Production Lathe Retrofit

INDUSTRY: High Production Machining

PRODUCT: Posidyne Multi-Speed Drive Type I

PRODUCTION LATHE RETROFIT

Obsolete internal clutch/brake & gear train

30 HP Drive Motor

Posidyne Multi-Speed Drive Type I Retrofit

1:1 Silent Chain

1:1 Gear Belt Drive

2:1 Gear Belt Drive

#10 MSDr Multi-Speed Drive Type I

Distributor Shaft
WHERE THEY ARE USED: High production turning of small automotive and non-automotive component parts ie; distributor and oil pump shafts.

HOW THEY WORK: Two different speeds are required in machining a distributor shaft, high speed (1200 rpm) for the rough turn, and a slower speed (800 rpm) for a grooving tool. The initial design uses an internal clutch/brake and complicated system of gears to provide the two speeds. The Multi-Speed Drive MSDr Type I accomplishes this by using a double-ended motor with one end connected to the primary clutch through a timing chain and the other end through a timing belt with a reduction of 2:1. The proper speed is selected by engaging the proper clutch. The timing chain can be furnished in ratios up to 3:1 and the timing belt in ratios up to 4:1 for a wide variety of speeds.

PROBLEMS SOLVED: The initial system had many breakdowns due to the sharp torque spike caused by the internal clutch/brake, which did not have the internal fluid recirculation. These spikes caused unnecessary stress and wear on the system of gears, shafts, and bearings. The MSDr Type I retrofit has allowed at least one customer to reduce his inventory of gears, bearings and shafts and eliminate the annual rebuild at a savings of $11,000. Lathe efficiency has also been increased.

IMPORTANT FEATURES:

• Adjustable torque control.

• Oil Shear design provides smooth, positive, and quick acceleration to machining speeds.

• Patented internal fluid recirculation lubricates and cools friction surfaces for long life.

• The MSDr provides the ability to dynamically downshift from high to low speed quickly, yet smoothly.

• Low inertia, small diameters, and quality machining give the MSDr inherent balance, which reduces vibrations harmful to the parts finish and tool life.