Magnetic Particle Clutches & Brakes

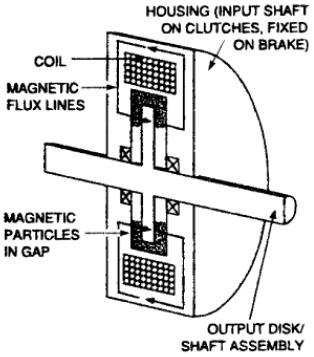
FEATURES:

- Magnetic engagement without movement of mechanical parts
- Smooth and silent
- No backlash
- Nearly linear torque vs. current
- No friction surface to wear out
- Ultrafast response
- Low output inertia
- High torque-to-size ratio
- Infinitely adjustable torque

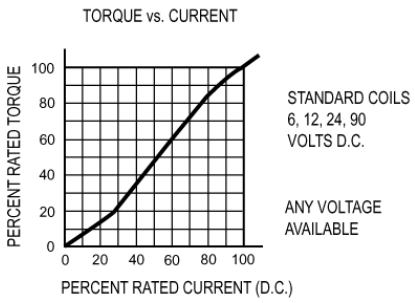
APPLICATIONS:

- Tensioning
- Stepping and Indexing
- Overload Protection
- Motor Testing
- Controlled Start / Stop

HOW THE UNITS WORK:



The output disk/shaft assembly does not touch the housing. The gap in between is filled with a fine, dry stainless steel powder. The powder is free flowing, until a magnetic field is applied from the stationary coil. The powder particles form chains along the magnetic field lines, linking the disk to the housing. The torque is proportional to the magnetic field and, therefore, to the applied D.C. input current. Output torque is controlled by varying the D.C. input current. The torque vs. current curve is essentially linear, with a slight "S" shape.



While the input torque is less than the output torque, the brake or clutch won't slip. For brakes, the output shaft won't rotate. For clutches, the input shaft will be coupled to the output shaft, with no slip.

When the input torque is increased, the brake or clutch will slip smoothly at the torque level set by the coil input current. Output torque is independent of slip rpm.