# magnetic particle CLUTCH  KC-2.5      0.2 to 15 lb.-ft.

TORQUE  (LB.-FT.) vs INPUT CURRENT  (AMPERES)

| At Clutch Temperature : | 68°F | 160°F |
|---|---|---|
| COIL  RESISTANCE  (ohms) | 16.2 | 19.5 |
| INPUT D.C. VOLTAGE,  @ 1.3 amps | 21 | 25 |

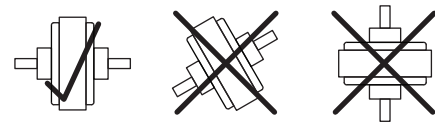Do not exceed 25 volts or 15 lb.-feet torque.
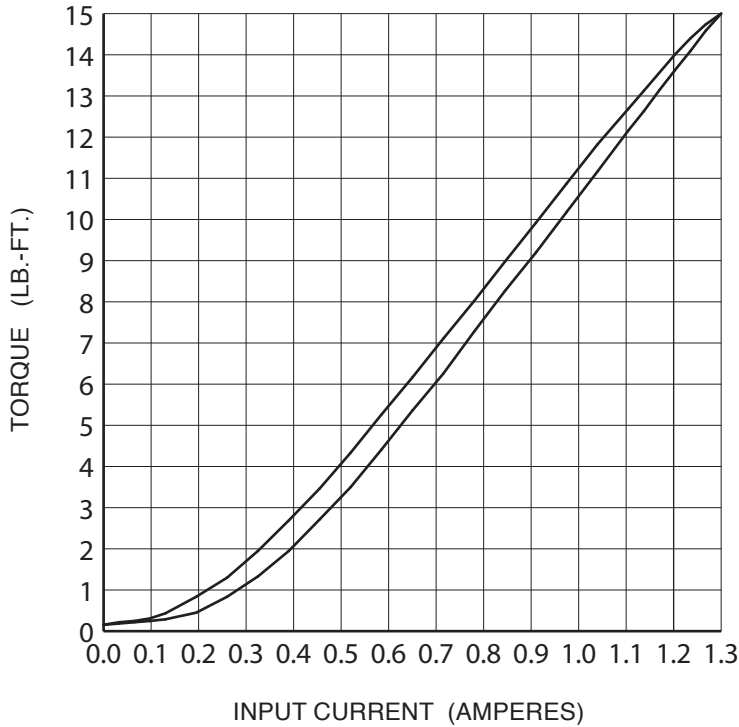
**CHARACTERISTICS** - With no electrical excitation, the input shaft & output shaft freely rotate.  With electrical excitation, the input shaft becomes coupled to the output shaft.  Torque is proportional to input current (see torque graph), and independent of slip RPM.  While the load torque is less than the output torque, the clutch drives without slip.  When the load torque is increased, the clutch will slip smoothly at the torque level set by the coil input current.

Torque range . . . . . . . . . . . . .  0.2 to 15  lb.-ft.
Maximum RPM . . . . . . . . . . . . . . .  1800  RPM
Heat dissipation, @ 100 RPM . . . .  130  watts
Heat dissipation, @ 1000 RPM . . . .  175  watts
Heat  dissipation, w/ piped air . .  260  watts
        Piped air pressure . . . . . . . . . . 4  psi
        Piped air volume . . . . . . . . . . 6  ft.$^3$/minute
Maximum case temperature . . . . .  160  degrees F
Maximum overhung load  . . . . . . .  90  lbs.
Output shaft inertia . . . . . . .  0.013  lb.-in.-sec$^2$
Input shaft inertia . . . . . . .  0.034  lb.-in.-sec$^2$
Weight . . . . . . . . . . . . . . . . . .  21  lbs.

**TORQUE CURVE** - Use the lower torque curve when an input current value is approached from 0 amperes.  Use the upper torque curve when the input current value is approached from the 100% input current.



Mount horizontally only.

## CLUTCH PERFORMANCE

TORQUE:  At 21 volts, the clutch will draw 100% of the rated input current, at 68°F.  Output torque will be 16 lb.-ft.

POWER SUPPLY: A "constant-current" D.C. power supply is recommended for the best accuracy in open-loop control systems.

HEAT DISSIPATION:  Fins on the internal rotor move air which increases cooling with increasing input RPM. A fan or compressed air flowing into cooling ports increases cooling.  For continuous slip, calculate the heat input  by the formula :

   HEAT (watts)  =  SLIP RPM  x  TORQUE (lb.-ft.)  x  0 .14

Using the above formula: At rated torque, the maximum continuous slip RPM (input RPM - output RPM) is 62, (124 with compressed air). The clutch can dissipate higher amounts of heat for short periods of time, but the average must not exceed ratings.  The case temperature must never exceed 160° F.

## INSTALLATION INFORMATION

Do not drop, or strike with a hammer.  Keep away from fine metal filings and fine metal chips.  Shield from liquids.

Do not attempt to remove the clutch shaft or retaining rings.

All  pulleys, sprockets, couplings, etc. must mount as slide fits.  Use a puller to remove stuck components.  Never pry or hammer to install or remove  components.

Always use a flexible coupling when connecting the shaft of a rigidly mounted clutch to the shaft of another rigidly mounted device.  Precisely align both shafts.

Always electrically ground the clutch.  Put covers over terminals.

**COMPRESSED AIR COOLING** For additional cooling, connect low pressure (7 psi max.) compressed air to the 1/8-19 BSPT tapped hole. (British Standard Tapered Pipe Thread).   An adaptor fitting to 1/4" hose is included.  Use clean, filtered, oil free, moisture free air.