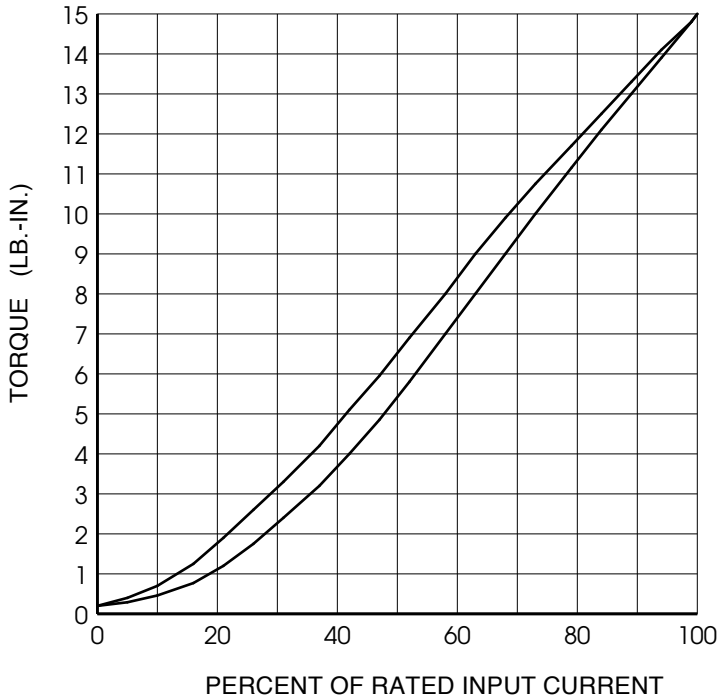


# magnetic particle CLUTCH C15

0.4 to 15 lb.-in.

## DATA SHEET



**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 . . . . . 0.4 to 15 lb.-in.
- Maximum RPM . . . . . 1400 RPM
- Maximum heat dissipation . . . . . 20 watts
- Maximum case temperature . . . . . 160 degrees F
- Maximum overhung load . . . . . 35 lbs.
- Output shaft inertia . . . . .  $44 \times 10^{-6}$  lb.-in.-sec<sup>2</sup>
- Response (unforced) . . . . . 25 mSec.
- Response (forced) . . . . . 14 mSec.
- Weight . . . . . 5 lbs.

← Use the lower curve when approaching a current value from 0 amps. Use the upper curve when approaching a current value from 100% rated current.

	6 V	12 V	24 V	90 V
COIL RESISTANCE (ohms)	7.3	28	105	1370
100% INPUT CURRENT (amps)	0.78	0.41	0.22	0.063

← Rated D.C. coil voltages available: 6 VDC (yellow leads), 12 VDC (green leads), 24 VDC (red leads), 90 VDC (blue leads).

### CLUTCH PERFORMANCE

**TORQUE:** At the rated voltage, the clutch will draw 100% of the rated input current. Output torque will be 15 lb.-in.

**POWER SUPPLY:** A "constant-current" D.C. power supply is recommended for the best accuracy in open-loop control systems. This type of power supply will maintain a fixed (but adjustable) output current, regardless of the temperature of the clutch, so output torque is constant (but adjustable).

**HEAT DISSIPATION:** The clutch can dissipate 20 slip (thermal) watts continuously. For continuous slip, calculate the heat input by the formula :

$$\text{HEAT (watts)} = \text{SLIP RPM} \times \text{TORQUE (lb.-in.)} \times 0.012$$

Using the above formula: At rated torque, the maximum continuous slip RPM (input - output RPM) is 111. The clutch can dissipate higher amounts of heat for short periods of time, but the average must not exceed 20 watts. The case temperature must never exceed 160 degrees 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 shafts.

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.

Center your set screw on the flats of the clutch shafts.

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

Always electrically ground the clutch.



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