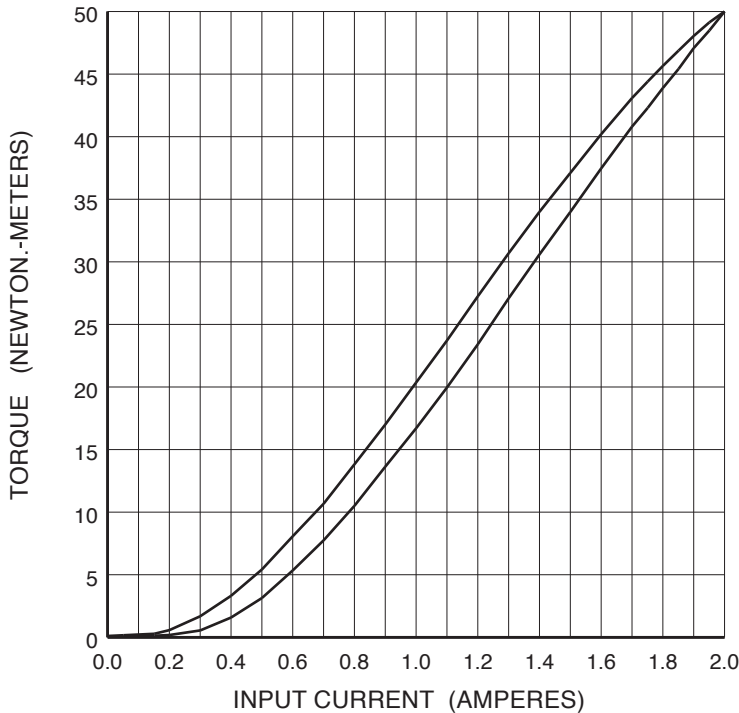


# magnetic particle CLUTCH KC-5

0.7 to 50 N-m.

## DATA SHEET



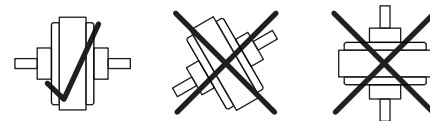
**CHARACTERISTICS** - With no electrical excitation, the input shaft & output shaft freely rotate. With electrical excitation, the input shaft becomes coupled to the output shaft. Torque is proportional to input current (see torque graph), and independent of slip RPM. While the load torque is less than 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 . . . . .	0.7 to 50	Newton-m.
Maximum RPM . . . . .	1800	RPM
Heat dissipation, @ 100 RPM . . . .	190	watts
Heat dissipation, @ 1000 RPM . . . .	275	watts
Heat dissipation, w/ piped air . . . .	425	watts
Piped air pressure . . . . .	34	kiloPascals
Piped air volume . . . . .	0.20	m <sup>3</sup> /minute
Maximum case temperature . . . . .	75	degrees C
Maximum overhung load . . . . .	550	Newtons
Output shaft inertia . . . . .	0.0048	kg.-m <sup>2</sup>
Input shaft inertia . . . . .	0.0095	kg.-m <sup>2</sup>
Weight . . . . .	16	kg.

**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.

At Clutch Temperature :	20 C	75 C
COIL RESISTANCE (ohms)	9.5	12
INPUT D.C. VOLTAGE, @ 2 amps	19	24

Do not exceed 24 volts or 50 N-m. torque.



Mount horizontally only.

### CLUTCH PERFORMANCE

**TORQUE:** At 19 volts, the clutch will draw 100% of the rated input current, at 20°C. Output torque will be 50 Newton-m.

**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 :

$$\text{HEAT (watts)} = \text{SLIP RPM} \times \text{TORQUE (N-m.)} / 9.6$$

Using the above formula: At rated torque, the maximum continuous slip RPM (input RPM - output RPM) is 36, (80 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 75°C.

### 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 (100 kPa. max.) compressed air to the 1/4-19 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.



Magnetic Particle Brakes & Clutches  
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