



Magnetic Power Systems, Inc.

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INSTRUCTION MANUAL
SOFSTEP[®] Magnetic Particle Clutches
24 vdc & 90 vdc Models: PSC2, PSC15, PSC70, PSC120

CAUTION: This product contains rotating parts which could cause injury. At time of installation, appropriate protective guards should be installed by the user according to his use of this product.

Theory of Operation

The clutch construction consists of two stators, a clutch rotor, output shaft assembly, a coil assembly, magnetic powder, and four bearings. The bearings support and align the shafts and rotor with the stators, and allow them to rotate within the clutch assembly. The magnetic powder occupies the space between the output shaft disk and the rotor, and represents the key element in the operation of the clutch.

The stators are connected to the machine frame and remain stationary. The rotor is connected to a motor or prime mover while the output shaft is connected to a rotating machine shaft. The magnetic powder functions as the variable bond or link between the disk and the rotor. It is the medium for the transmission of torque.

An electric current in the coil creates a magnetic field (flux), which passes through the stators, rotor magnetic powder, and the output shaft disc. The flux aligns the powder particles, forming a bond or link between the disk and the rotor. The strength of the bonding action is proportional to the amount of current in the coil.

Mechanical Installation

1. Prior to installation, manually check the rotation of the rotor, and observe that it is smooth and free of binding or scraping.
2. Mount the clutch to the machine. The optional brackets may be used to provide mounting feet.
3. For indirect mounting, install sheave or sprocket on shaft(s). For direct inline mounting, use flexible couplings to connect clutch shaft(s) with machine shafts.
4. For applications where clutch shafts are vertical, install unit with the input shaft facing downward. (See label on clutch)
NOTE: PSC2 can be mounted in either direction.

Electrical Installation

For 24 vdc devices, connect the two wires to the 24 vdc power source.

For 90 vdc devices, connect the two wires to the 90 vdc power source.

	PSC2		PSC15		PSC70		PSC120	
Coil Voltage (vdc)	0-24	0-90	0-24	0-90	0-24	0-90	0-24	0-90
Maximum Current (adc)	.37	.08	.54	.12	.50	.12	.85	.22

Environmental Specifications

Temperature Range:

Operating 0°C to 40°C
Storage -30° to +80°C

Relative Humidity: 5% to 85%

Pollution Degree: 2 (IEC664-1)

Altitude: 0 to 2000 m

Maintenance

These units require no scheduled maintenance.

The following units can be rebuilt at the factory: PSC70 and PSC120
Unit rebuilt includes replacement of bearings, seals and magnetic powder.

The following units cannot be economically repaired: PSC2 and PSC15.