



MAGNE POWER

INSTALLATION AND MAINTENANCE

MAGNEBRAKE MAGNETIC PARTICLE BRAKE
BASE MOUNTED

MAGNEBRAKE
MODELS:

50MB*90B20

100MB*90B20



DESCRIPTION:

The Magnebrake is a dry magnetic particle device containing a ball bearing supported rotating member which encloses a stationary member. The gap between the rotor and outer rotating member is partially filled with a measured amount of specially prepared steel powder called "magnetic medium". The shaft of the equipment requiring braking action is coupled to the single protruding shaft of the Magnebrake.

When braking action is required, electrical current is passed through a coil located in the housing of the brake. The energized coil develops a magnetic field causing particles of the magnetic medium to cling together between the outer rotating member and rotor resulting in braking action. This braking action is controlled by changing the current through the coil.

INSTALLATION:

Mechanical

The Magnebrake mounts in a horizontal position with a maximum deviation of 30°. The brake is mounted by passing through the base bolts which are then fastened to a stationary object; such as a table or the frame of machinery.

Electrical

Direct current coil power may be derived from any suitable DC power source. Nameplate torque is obtained with less than the nominal voltage rating. Nominal standard coil voltage is 90 VDC.

WARNING: IN APPLYING MAGNETIC PARTICLE DEVICES CERTAIN PRECAUTIONS SHOULD BE EXERCISED. PROVISIONS SHOULD BE MADE FOR CONNECTING THE CLUTCH AND BRAKE FRAME TO AN EFFECTIVE GROUND. PROPER GUARDING OF ALL ROTATING COMPONENTS SHOULD BE ACCOMPLISHED. FAILURE TO EXERCISE THESE PRECAUTIONS COULD RESULT IN SERIOUS PERSONAL INJURY, UP TO AND INCLUDING DEATH. MAGNE IN NO WAY IMPLIES THAT IF APPLICATION SUGGESTIONS ARE ADOPTED THAT A PIECE OF EQUIPMENT WILL MEET APPLICABLE SAFETY STANDARDS. MAGNE RECOMMENDS THAT ALL DESIGN APPLICATIONS INCORPORATING ITS CLUTCHES, BRAKES AND CONTROLS BE FULLY EVALUATED AND SUBMITTED TO APPROPRIATE REGULATORY AGENCIES FOR TESTING SPECIFICALLY RELATED TO SAFETY CONSIDERATIONS.

MAINTENANCE:

With normal maintenance, the service life of a Magnebrake is exceptionally long. Bearings, magnetic medium, and rotating seals may require replacement some time during the service life of the Magnebrake. Self repair kits are available or units may be returned to the factor for evaluation and repair.

Use the following outline as a guide for determining the cause for improper operation.

NOTE: Nominal resistance value for 90 VDC coils is as follows:

50MB*90B20 - 127 ohms @ 20°C / 100MB*90B20 - 68 ohms @ 20°C

1. **No Braking Action:** Check current through clutch coil and voltage across the coil.
 - a) Voltage normal - Current zero; probable open coil - replace coil.
 - b) Voltage low - Current low or zero; check power source for proper output.
2. **Lower Than Normal Braking Action:** Check current through clutch coil and voltage across the coil.
 - a) Voltage normal or low - Current high; probable shorted coil - replace coil.
 - b) Voltage low - Current low; check power supply.
 - c) Voltage normal - Current normal; disassemble, clean parts, add new charge of magnetic medium.
3. **Excessive Noise or Vibration:** Check for loose connections and proper mounting. If problem is isolated at brake, disassemble and check bearings. Replace if necessary.
4. **Intermittent/Erratic Operation:** Check brake power supply. Check coil. If normal, disassemble brake, clean parts and add new charge of magnetic medium.

DISASSEMBLY PROCEDURE:

BASE-MOUNTED BRAKES

1. If the unit is water cooled, first step is to remove all water fittings.
2. Remove terminal box cover and disconnect leads.
3. Remove mounting bolts holding the end shields and mounting brackets to the stator frame.
4. Loosen and remove the set screw located on the end shield bearing chamber on the shaft side.
5. Heat the end shield bearing chamber until hot to the touch. A rubber mallet can be used to loosen the end shield from the outer housing while the hot bearing chamber will allow the end shield to slip over the shaft bearings.
6. Remove the set screw on the other end shield and heat the end shield chamber until hot to the touch and remove from the outer housing and inner stationary rotor subassembly.
7. Remove the entire rotating assembly from the outer housing.
8. Coil may be removed by lifting out the inner housing rings and removing the coil from the outer housing, being careful to feed coil leads through the hole in the outer housing.
9. The inner and outer rotating members are separated by removing the six screws holding the seal cover to the rotating member.

Note: Magnetic medium will spill out when the seal cover is removed from the outer rotating member. Dispose of the used magnetic medium and clean the clutch parts with a dry brush.

10. Bearings are removed from the shaft by removing the retaining rings and spacer sleeves.

ASSEMBLY PROCEDURE:

Assembly of the brake should be performed in a clean area. The brake components must be cleaned with solvent and be **TOTALLY FREE OF ANY GREASE OR OIL**. Discard all bearings, magnetic powder, insulators, seals and gaskets from disassembled brake as these are repair kit parts and should be replaced at overhaul. **ANY OIL OR GREASE** on the rotor or the inside of the cylinder will cause premature failure when the unit is rebuilt.

1. Replace the insulator, bearings, retaining rings and outer spacer sleeve on the shaft.
2. Heat the end shield bearing chamber until hot to the touch and assemble the outer rotating subassembly to the end shield by slipping the heated end shield over the bearings. Align the groove in the bearing spacer sleeve with the end shield bearing set screw hole. Replace and tighten the set screw to a torque of 20-25 lb. in. Then, replace the jamming nut torquing it to 30-35 lb. in.
3. Pour a fresh quantity of magnetic medium into the outer rotating subassembly. The repair kit comes with a properly measured amount of magnetic medium.
4. Place the inner stationary subassembly into the outer rotating cylinder.
5. Assemble the new seal into the seal cover and then over the inner stationary subassembly shaft with the lip pointing to the rotor. The small fins on the seal cover should align with the small fins on the drive cover.
6. The six seal cover screws should be torqued to 20-25 lb. in.
7. Replace coil and inner housing rings into outer housing being careful to properly route leads.
8. Place the coil, inner rings, and housing over the outer rotating subassembly.
9. Heat the inner stationary rotor end shield chamber until hot to the touch and slip over inner rotating member shaft. Align and replace set screw to a torque of 35 lb. in. Reinstall water fittings, if applicable.
10. Install the four bolts holding the brackets and all components together. The four bolts should be torqued to 140-145 lb. in. When assembled correctly the end shield bearing chamber set screw and inner rotating member end shield set screw should be visible from the top of the unit.