

B Series Brake

Installation and Maintenance Manual

Models B25, B50, B50S7, B5100S2, B100S4, B100S5

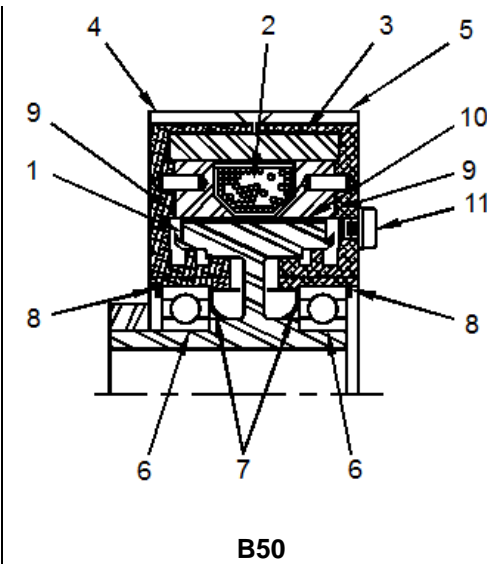
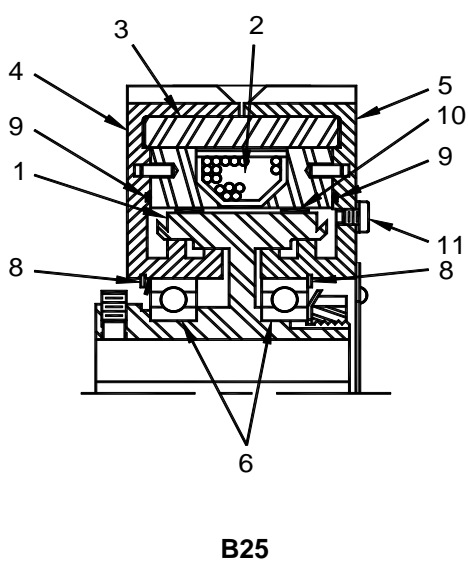


This product contains rotating parts which could cause injury at time of installation. Appropriate protective guards should be installed by the user according to his use of this product.

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Brake Parts

1	Rotor assembly
2	Coil
3	Stator rings
4	Left stator
5	Right stator
6	Bearings
7	Seals (2)
8	Snap rings (2)
9	O-ring
10	Magnetic powder
11	Powder fill screw

THEORY OF OPERATION

The brake consists of a stator, a rotor, coil, stator ring, shaft, magnetic powder and bearings which support and align the rotor in the stator.

The magnetic powder occupies the space between the rotor and the coil. This magnetic powder is the key element in the brake in that it functions as the adjustable bond or link between the rotor and the stationary coil. The coil is secured to the stator and the stator is connected to the machine frame through a torque arm and remains stationary.

A current in the coil creates a magnetic field (flux) which passes through the rotor, the coil housing, and the magnetic powder. The flux aligns the powder forming links or bonds between the rotor and the coil. The strength of the bonding action (torque) is proportional to the amount of current in the coil.

MECHANICAL INSTALLATION


1. Refer to catalog sheet for mounting dimensions.
2. Prior to installation check the rotation by hand and observe that it is smooth and free of binding or scraping.
3. The rotor shaft centerline must be mounted within 30° of the horizontal plane.
4. Mount the brake on the shaft and tighten the two set screws.
5. Attach the torque arm to the tapped holes in the machine frame with a “loose” or “floating” mount to prevent binding forces on the brake bearings.

ELECTRICAL INSTALLATION

For 24 VDC devices

1. Connect the two wires in the junction box to the 24 vdc power source.

For 90 VDC devices

1. Connect the 90 vdc power source to the terminals marked 1,2.
2. Connect the protective bonding circuit to the terminal marked with the P.E. symbol 

ENVIRONMENTAL SPECIFICATIONS

Note:

The brake coil system has been changed from Class A to Class F. Refer to the nameplate on your unit to determine which insulation class that you have.

If you have Class F insulation, the nameplate will denote Class F.

If you have Class A, there will be no notation on the nameplate.

Temperature Range:	
Operating	0°C to 40°C
Storage	-30°C to +80°C
Relative Humidity:	5% to 80%
Pollution Degree:	2 (IEC664-1)
Altitude:	0 to 2000 meters

Maximum Current, ADC

Model	Supply Voltage, VDC			
	0 - 24		0 - 90	
	Class A	Class F	Class A	Class F
B25			0.38	0.53
B50			0.21	0.29
B50S7	0.76	1.12		
B100S2			0.53	
B100S4				0.84
B100S5		0.64		

TROUBLESHOOTING

Problem	Possible cause	Action
Load is not controlled by brake	Power supply voltage output low	Replace or repair control
	Magnetic powder has deteriorated or is partially lost	Overhaul brake using repair kit
	Coil is open	Replace coil
Load operates in an intermittent manner with proper 90 VDC	Coil is intermittently open	Replace coil
Brake is noisy and has some vibration	Bearings are worn	Overhaul brake using repair kit

MAINTENANCE

Due to its small number of moving components and its basic design, maintenance of the brake is generally necessary only after extended service. When a problem appears in the system, ensure that all couplings, belts, etc., and the control device are functioning properly. Use the Troubleshooting guide on previous page to determine the cause of the problem.

The brakes can be rebuilt with a repair kit that returns it to “as new” condition. A repair kit includes a new powder charge and the appropriate bearings, seals and snap rings generally needed to rebuild the unit.

Repair kit part numbers

29LRKB25 B25 model

29LRKB50 All B50 and B100 models

NOTE: When ordering parts not contained in the kit, provide the model number, serial number and parts list item number.

BRAKE DISASSEMBLY

1. Remove the set screws from shaft.
2. Remove conduit box cover, one nameplate screw, and four through bolts.
3. Remove right stator and bearing by tapping lightly on shaft with soft mallet. Remove o-rings.
4. Lift out coil and stator ring. (Do not remove stator ring from coil unless coil is to be replaced. Coil can only be pressed out in direction of lead slot.)
5. Remove rotor assembly from left stator by tapping lightly on shaft with a soft mallet.
6. Pry up tab on bearing lockwasher and remove bearing locknut. Remove bearing rotor, key, and bearing from shaft.
7. Clean gasket compound from sides of coil and insides of stator halves. Do not immerse coil in solvent.

- ⇒ Reassemble the brake in a clean area.
- ⇒ The brake components must be cleaned with solvent and be totally free of any grease or oil.
- ⇒ Any oil or grease left on parts will cause failure when unit is rebuilt.
- ⇒ Discard all bearings, seal, and magnetic powder from disassembled brake; use the new components that are provided in the repair kit.

Assembly instructions are on the next page.

ASSEMBLING THE BRAKE

1. Assemble bearing (with seal facing inside), rotor, key, outer bearing lockwasher and locknut on shaft.
2. Install snap ring into left stator. Install wave washer against snap ring.
3. Install rotor assembly, large end of shaft first, into left stator.
4. Install o-ring into left stator. Glue in place.
5. If coil and stator ring are separated, heat stator ring in oven or with torch until hot to the touch, then slide coil into place from side with slot. Center coil in ring.
6. Set coil assembly into the stator ring, aligning the leads with the groove.
7. Install o-ring and snap ring into right stator.
8. Install right stator into left stator.
9. Install four through bolts and nuts, and junction box cover.
10. Turn shaft by hand to insure a smooth rotation of rotating assembly.
11. To fill the brake with magnetic powder, perform the fill operation on a clean piece of paper. Any spillage is retained to be poured into the brake.
 - a. Place the brake on a 45 degree angle with the powder fill hole at the 3 o'clock position.
 - b. Fill the brake with all the powder in the repair parts kit.
 - c. While filling, slowly rotate the shaft to evenly distribute the powder.
 - d. Install the sealing washer and powder fill screw.
12. Replace the two set screws.



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