

# SL and BSL Series Power-On Brakes

## Instruction Manual

**P-8151-IDI  
040-10112**



**SL Series**



**BSL Series**

### Pre-Assembly Inspection

#### Step 1

All parts should be examined for damage from shipping and handling. Measurements should be taken to ensure parts meet application requirements. All parts must be clean and free of any foreign material before attempting assembly.

### Installation of Keys

#### Step 2

Install keys in respective shafts. Keys should fit keyseat with a tight fit on the sides and slight clearance over the key.

### Step 3 for Clutch Installation

Mount the drive component (sprocket, gear or sheave) to the armature according to the manufacturer's recommendation. Care should be taken to ensure the component is mounted square with the hub to ensure minimal run-out.

#### Step 4

Slide the armature hub with drive component and rotor and field assembly over the drive shaft. Make sure the armature hub spins freely without binding on the shaft. Tighten the set screws on the rotor and field assembly. See recommended tightening torque in Chart 1.

### Step 5 (SL Series only)

Retain the armature hub with drive component from sliding away from the rotor and field by means of a stop collar, retaining ring, or other (customer supplied). Do not force the armature hub against the rotor as this will cause excessive drag and premature bearing failure.

#### Step 6

Pin anti-rotation tab on field assembly. Do not bolt tab to a bulkhead as it may bind field bearings.

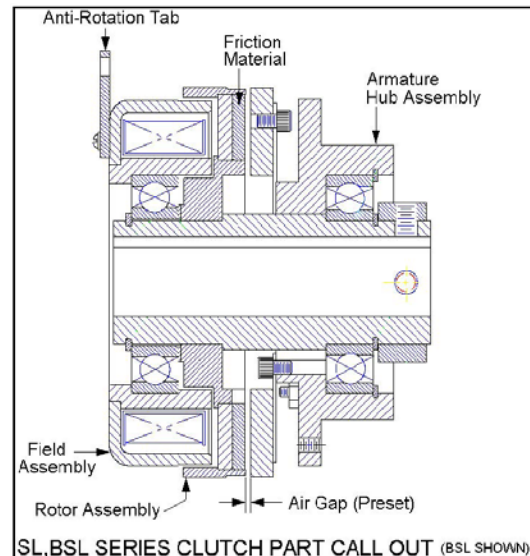
#### Step 7

Wire field to control power supply. Inertia Dynamics power supplies are available with a wiring diagram showing the correct electrical connections.

#### Step 8

After the unit has operated for a short period; recheck air gap, drive component mounting, and set screw torque.

**Note:** SL & BSL Clutches are not pre-burnished and need to be "run in" to develop rated torque (see Burnishing Procedure). The air gap is pre-set at the factory. The normal operating air gap should range from .005" to .020" inches (.13 to .51mm). The clutch field assembly is bearing mounted for easy installation. A properly sized sprocket, gear or sheave may be pressed and/or set screw mounted to the armature hub.



### Burnishing Procedure

Burnishing is a wearing-in or mating process used to obtain consistent engagement and develop full rated torque.

1. If possible, burnish the clutch in the final application or location to insure alignment of the mated parts (this does not apply to the BSL series).
2. If the clutch cannot be burnished in final application, mount the clutch in a test stand observing concentricity, alignment, and air gap.

3. Using a filtered DC power supply, energize unit at 100% of rated coil voltage (this assures proper armature engagement against field assembly). Then reduce the voltage to 30% to 40% of rated coil voltage.
4. Rotate one member of the clutch (either the rotor or armature) at the suggested RPM (see chart 2); while holding the other member stationary to obtain a forced slip while the unit is energized at 30% to 40% of rated coil voltage.
5. De-energize the unit after a three minute forced slip. Do not burnish a clutch longer than three minutes as excessive burnish duration will cause heat build-up on the friction faces resulting in poor performance.
6. Measure the static (break away) torque of the clutch with both friction members of the clutch stationary at 100% rated voltage.
7. The static torque of standard Inertia Dynamics clutches after burnishing should be equal to the catalog rating. If the unit does not measure the catalog rating, repeat step 2 after a cool down period of five minutes, until the rated torque is obtained.

**Note:** If the clutch is required to accelerate a large inertia load, the normal slipping that will occur when the load is engaged is frequently sufficient to cause the unit to become burnished. Inertia Dynamics clutches typically produce 50% to 90% of their rated torque “out-of-box” (without burnishing). The Customer should determine if the “out-of-box” torque is adequate for their application as the torque will increase with

normal cycling (especially on high speed, high inertia load applications). Care must be taken to prevent contamination of the friction faces with oil or dirt particles during the burnishing process.

**Chart 1**

**Imperial**

Set Screw Size	Recommended Tightening Torque
#4	5 in-lbs.
#5	9.5 in-lbs.
#6	9.5 in-lbs.
#8	19.4 in-lbs.
#10	33.5 in-lbs.
1/4"	78.0 in-lbs.

**Metric**

Set Screw Size	Recommended Tightening Torque
M3	1.13 Nm
M4	2.67 Nm
M5	5.31 Nm
M6	9.10 Nm

**Chart 2**

Unit Size	Slip RPM +/- 10%	Imperial Standard Static Torque Rating	Metric Standard Static Torque Rating
8	250	2.5 in-lbs.	0.28 Nm
11	250	6 in-lbs.	0.68 Nm
15	190	10 in-lbs.	1.13 Nm
17	160	15 in-lbs.	1.70 Nm
19	150	25 in-lbs.	2.83 Nm
22	130	50 in-lbs.	5.65 Nm
26	60	80 in-lbs.	9.04 Nm
30	50	125 in-lbs.	14.12 Nm
42	30	250 in-lbs.	28.24 Nm

**⚠ WARNING** Because of the possible danger to person(s) or property from accidents, which may result from the improper use of products, it is important that correct procedures be followed: Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the instruction manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Inertia Dynamics nor are the responsibility of Inertia Dynamics.



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