



90B Multiple Disc Brake

Spring Apply, Hydraulic Release Static Brake
Up to 4,800 in*lb (542 N*m) Holding Torque
Typical Applications: Industrial, Marine, or Mobile Equipment

(913) 782-1238 (Tel)
(913) 782-4206 (Fax)
Sales@Eskridgeinc.com
www.Eskridgeinc.com
FORM: PS90B-CD

SHEET 1 OF 4

Performance Ratings

Maximum Release Pressure: 3,000 PSI*
Maximum Continuous Pressure: 3,000 PSI*
Maximum Speed at Full Release Pressure: 3,900 RPM
Maximum Operating Temperature: 170° F (77° C)

*5,000 PSI Available

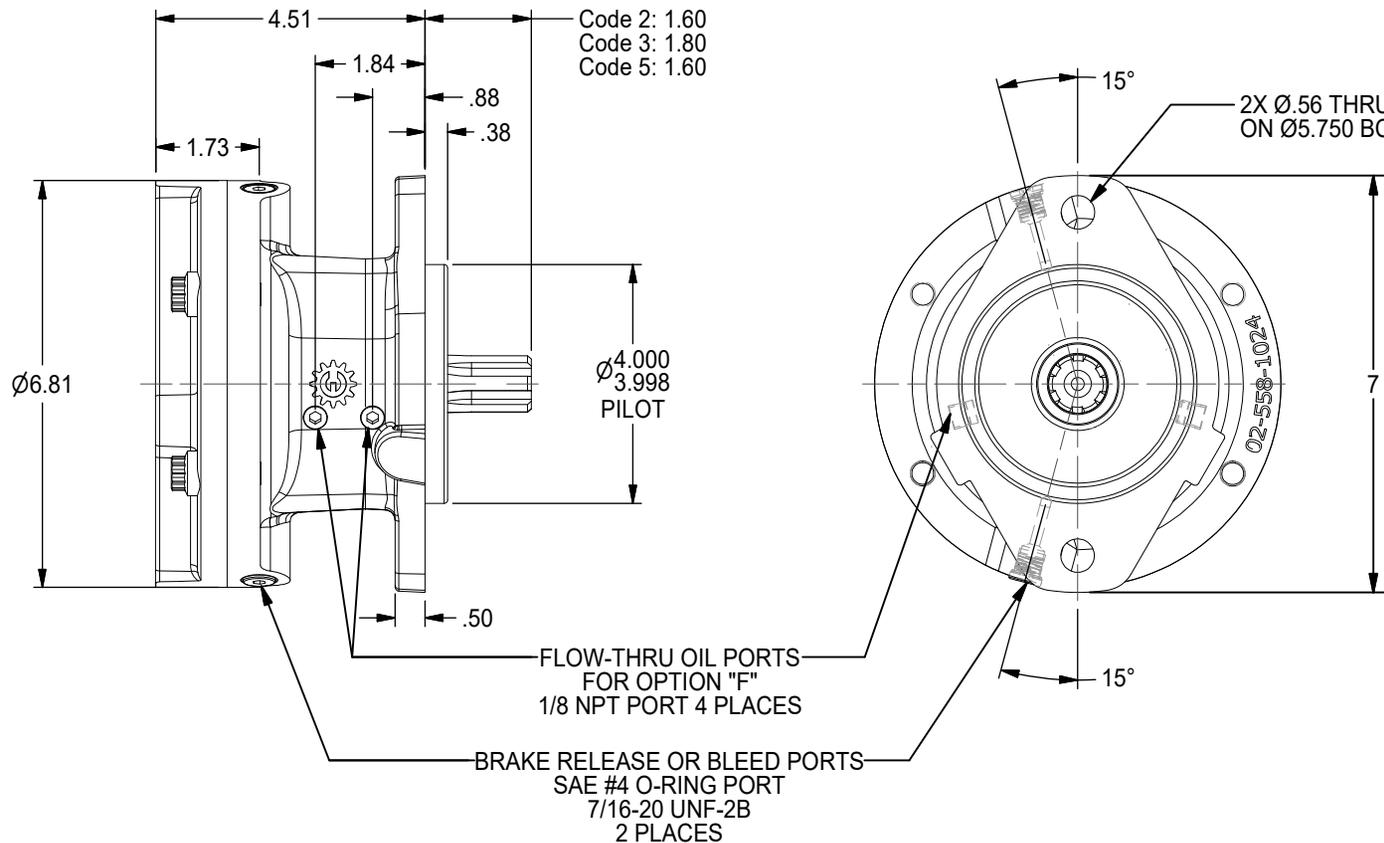
Consult your Eskridge representative to determine ratings
for your specific application or configuration.

Volume of Oil to Release Brake: 0.3 Cubic Inches (4.9 cc)
Approximate Weight: 25 lb (11 kg)
Shaft Splines: 30° Involute, Flat Root, Side Fit
per ANSI B92.1a-1976
Internal: Fit Class 7; External: Fit Class 5

Not Rated for Radial or Axial Loads on Shaft

General Dimensions

Values shown are in inches





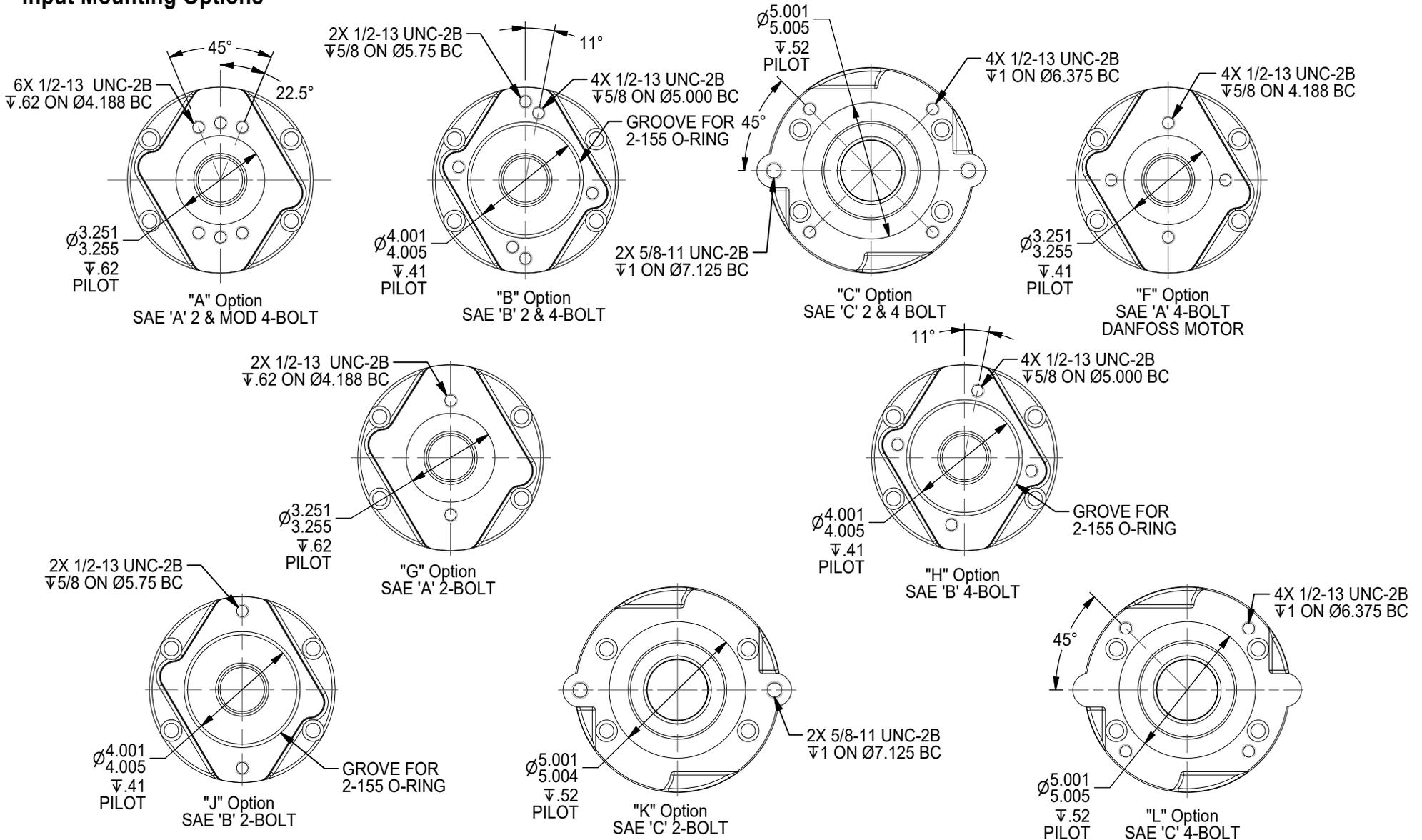
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Input Mounting Options





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Ordering Information

Example Part Number: **90B2A2G045F**

MODEL	OUTPUT MOUNT	OUTPUT SHAFT	INPUT MOUNT	INPUT SHAFT	TORQUE CODE**	OPTIONS																											
90	B	2	A	2	G045	F																											
90 - Series Brake	B - SAE 'B' 2-Bolt	2 - 13T 16/32 DP Spline* 3 - SAE 1"-6B Spline 5 - 15T 16/32 DP Spline <i>*Maximum allowable transmitted torque by 13T output shaft is 4,000 in*lb.</i>	A - 'A' 2 & Mod 4-Bolt B - 'B' 2 & 4-Bolt C - 'C' 2 & 4-Bolt* F - 'A' 4-Bolt Danfoss G- 'A' 2-Bolt H- 'B' 4-Bolt J- 'B' 2-Bolt K- 'C' 2-Bolt* L- 'C' 4-Bolt*	2 - 13T 16/32 DP Spline 3 - SAE 1"-6B Spline 4 - 14T 12/24 DP Spline 5 - 15T 16/32 DP Spline 6 - Ø1.00" x 1/4" Keyed Verify motor shaft compatibility with factory	<table border="1"> <thead> <tr> <th>Torque Code</th> <th>**Torque Rating (in*lb)</th> <th>Release Pressure Initial/Full (PSI)</th> </tr> </thead> <tbody> <tr><td>G027</td><td>960</td><td>55/75</td></tr> <tr><td>G045</td><td>1,300</td><td>110/150</td></tr> <tr><td>G046</td><td>1,600</td><td>110/150</td></tr> <tr><td>G047</td><td>1,900</td><td>110/150</td></tr> <tr><td>G057</td><td>2,400</td><td>140/185</td></tr> <tr><td>G067</td><td>2,900</td><td>165/220</td></tr> <tr><td>G087</td><td>3,800</td><td>220/295</td></tr> <tr><td>G107</td><td>4,800</td><td>275/370</td></tr> </tbody> </table> <p><i>Other torque ratings are available. Consult Eskridge for additional information.</i></p>	Torque Code	**Torque Rating (in*lb)	Release Pressure Initial/Full (PSI)	G027	960	55/75	G045	1,300	110/150	G046	1,600	110/150	G047	1,900	110/150	G057	2,400	140/185	G067	2,900	165/220	G087	3,800	220/295	G107	4,800	275/370	F - Flow-Thru Oil** B - Bronze Friction Discs, Dry BW - Bronze Friction Discs, Wet E - System Pressure up to 5,000 PSI
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G107	4,800	275/370																															

* Available only with Input Spline Option 4.
14T 12/24

**Torque ratings are based on organic friction material in ATF Type F fluid media or dry bronze friction material at (0) PSI back pressure. Holding torque may vary ±10% from specified ratings. The "W" wet option applies only to bronze friction discs and is furnished with mineral based hydraulic oil as a fluid media with the friction pack. Torque ratings for wet brakes will vary depending upon the type of oil used and may not match the torque code listed above. Consult Eskridge for any wet or flow-thru brake applications. Use only mineral based hydraulic oil to release brake. For flow-thru option "F", use only fluids that are compatible with internal seals.



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Holding Torque:

The required holding torque for any Eskridge Multiple Disc Brake should be based on the application, the hydraulic circuitry involved, and whether or not the brake is mounted to a speed reducer (gearbox). The brake should have sufficient holding torque to prevent the motor from driving through it and/or with sufficient torque for grade holding requirements.

When the brake is used in conjunction with a gearbox where the backdriving loads will intentionally cause the brake to slip (such as a swing drive on cranes), extreme care must be taken in the design of the hydraulic circuitry to prevent overloading the gearbox from an accumulation of torque from the brake and associated hydraulic circuitry.

Release Pressures:

Release pressure is the hydraulic oil pressure that is applied to the brake release port to release the spring applied brake. The release pressure is stated as two related pressures. The first is "Initial Release Pressure." This is the pressure required to remove all force from the friction pack with no running clearance between the friction discs and separator plates. The second is "Full Release Pressure," which allows running clearance between the friction discs and separator plates. It is **imperative** that a brake be fully released when operated.

Always use oil pressure at least 20-30 PSI higher than the stated release pressure. Always bleed the piston cavity of all air prior to placing the unit into operation. Eskridge Brakes are designed as "Full System Pressure" brakes. The piston directly contacts the friction pack when applied, and it is evenly loaded with no bending under high pressure operation. See Sheets 1 and 3 for maximum allowable, initial, and full release pressures.

Back Pressure:

"Back Pressure" refers to oil pressure existing on the discharge side of the piston. It is most often the result of fluid flow restrictions or hydraulic circuitry design.

Back pressure on the brake release port will reduce the effective holding torque by an amount directly proportional to the release pressure. The actual holding torque can be calculated by using the formula below.

It is important to know your system's back pressure so allowances can be made in determining the correct holding torque requirement.

Back Pressure Formula:

$$\text{Actual Torque} = \text{Torque Rating} \times \left(1 - \frac{\text{Back Pressure}}{\text{Initial Release Pressure}}\right)$$

Example:

- Torque Rating = 3,800 in*lb
- Initial Release Pressure = 220 PSI
- Back Pressure = 30 PSI

$$\text{Actual Torque} = 3,800 \times \left(1 - \frac{30}{220}\right) = 3,280 \text{ in*lb}$$

Eskridge brakes comply with SAE Mounting Standards for interchangeability with other spring apply, hydraulic release brakes. Each brake is shipped with an o-ring to seal the output mount and either an o-ring or a gasket to seal the input mount.

All Eskridge brakes are function tested at the factory before shipment. Testing of each brake consists of pressure cycle, holding torque, and high pressure leak testing to ensure that all brakes meet model specifications.