

Fluid

To insure maximum motor performance and life, use a premium grade hydraulic or engine oil. Fluids with a minimum of .125% zinc (or equivalent) anti-wear package should be used. A mineral or synthetic based 10W40 engine oil or hydraulic (200 SUS) is recommended. Torqmotor™ seals come standard in nitrile rubber. If a fluid that is not compatible with nitrile is to be used, a fluoroelastomer seal material can be specified.

- Minimum fluid viscosity is 50 SUS
- Recommended fluid operating temperature is -28° C to 93° C (-20°F to 200° F)
- Filtration level is 20-50 micron nominal

Pressure

Operating the motor in its intermittent pressure range will shorten the life of the motor and should generally be restricted to 10% or less per minute. The reduced life resulting from continuous operation in the intermittent range may be acceptable in some applications. Consult the factory for details.

Shaft Loading

The use of 1 inch and 25mm diameter shafts are not recommended when torque loads exceed 3500 lb-in. 316 stainless shafts should be limited to 2000 lb-in. For 7/8 inch diameter shafts, torque should be limited to 1250 lb-in. Corrosion resistant Nitrotec shafts have reduced torque-carrying capability. Consult factory for values for specific shafts. The maximum thrust load on all shafts should not exceed 1000 lbs inward or outward.

Performance Data

Performance data shown in this catalog is the result of testing performed using 10W40 oil at 54°C (130°F), 200 SUS. Actual performance will vary with fluid conditions. Lower viscosity will produce lower performance.

Inlet Conditions

Positive pressure *must* be available at the motor inlet while it is rotating. If an overrunning load causes the motor to rotate faster than the pump can fill it, cavitation will occur. Consult the factory for inlet pressure requirements and speed limitations.

Other Operating Conditions

Consult factory before operating at conditions exceeding any ratings or recommendations in this catalog.

Installation Recommendations

- To avoid contamination do not remove plastic port plugs until fittings are to be installed.
- Motor mounting flange must make full contact with equipment mount; do not use the mounting bolts to force the motor pilot into the pilot hole to align the motor.
- Pulleys, sprockets, wheels, or couplings should be properly aligned on the shaft to avoid excessive radial or thrust loads.
- To avoid damaging the thrust system, do not hammer on the motor or shaft to install or remove couplings, pulleys, sprockets, etc.

Tapered Shaft

The tightening torque listed for a taper shaft nut is based on strength of the shaft and nut. Hub design and hub material determine the application tightening torque. Refer to hub manufacturers specifications to determine actual assembly torque. Factory suggested assembly torques are: 250-400 lb-ft (1.25, 1.5 & 1.75 Dia. Shafts), 175-225 lb-ft (1.0 dia. shafts).

To insure a sound hub to shaft coupling, the hub must conform to the full length of the shaft taper. This will prevent bending stresses at the keyway that could cause a fatigue failure.

Castle Nut

All motors ordered with Tapered shafts are equipped with patch locking nuts. If desired, a castle nut may be specified.

Paint

Unless specified otherwise, motors are shipped unpainted and coated with a rust inhibitor. Paint options are:

- * Single coat of black paint.
- * Single coat of black paint plus a coat of red oxide primer. (Double paint).

Reverse Timed Manifold

All motors in this catalog are bi-rotational. The efficiency of the motors is essentially unaffected by direction of rotation.

The direction of output shaft rotation depicted below is that which will result from pressurizing the “A” port of the motor. Pressurizing the “B” port will cause shaft rotation in the opposite direction. Direction of rotation is as seen by looking directly at the shaft.

“Front ported” motors have the ports at the shaft end of the motor. “Rear ported” motors have the ports in the end cap of the motor. Standard motors are Rotation Code “0”. Reverse timed motors are Rotation Code “1”.

Series	Standard Code “0”		Reverse Timed Code “1”	
	Front Ported	Rear Ported	Front Ported	Rear Ported
TC, TB, TE, TJ	CW	CCW	CCW	CW
TF, DF, TG, BG, DG, TH, BH	CCW	CW	CW	CCW
TK	N/A	CW	N/A	CCW
110A	CW	N/A	N/A	N/A
700, 716	CCW	N/A	N/A	N/A



CAUTION!

Static Brake Only:

The brakes on these motors are designed for static use only, i.e., the brake should not be used to stop the motor and the motor should not be started while the brake is applied. These brakes are "parking" brakes only. Using the brake in a dynamic condition (while the motor is turning) will damage and reduce the holding capacity of the brake. If the brake does not hold because it has been damaged, personal injury or property damage could result.

Brake holding capacity and periodic test:

The brake holding capacity rating is based on actual holding capacity when new. If properly used as a static brake only, the holding capacity will slowly decrease with time. Since holding capacity will slowly decrease over time, a proper maintenance procedure should include periodically testing the holding capacity of the brake. This can be achieved by running a vehicle ramp test per OEM instructions.

Brake orientation:

This wet sump, multi-disk brake is designed to be mounted with the shaft in a horizontal position. If your application will have the motor in any other orientation, the motor should be thoroughly tested for longevity of brake holding capacity. This can be achieved by running a vehicle ramp test per OEM instructions after a predetermined number of brake actuations. Under no circumstances, however, should the motor be mounted with the shaft pointing vertically upward because the disks will not be operating within the oil sump and damage to the brake disks will occur.

Holding torque/brake release pressure:

The brake release port is designed for 3000 psi maximum. Limiting the pressure in that port to below 1500 psi is recommended to enhance seal life. The minimum pressure required to fully release the brake depends upon the holding torque of the brake.

BG Series	Holding Torque	Release Pressure
Standard	12,000 lb in	315 psi
Optional	6,000 lb in	160 psi
Optional	9,000 lb in	240 psi
Optional	16,000 lb in	405 psi

BH Series	Holding Torque	Release Pressure
Standard	16,000 lb in	315 psi

Initial use, bleeding not required:

Bleeding the brake is not required. It is recommended that the brake release port be filled with approximately 1.2 oz. (36cc) system oil prior to installation or first use.

Torque for mounting bolts:

Customer installed mounting bolts should be grade 8 and torqued to a minimum of 90 ft-lbs.

Brake service intervals:

The seals, springs and brake disc package should be periodically (how often depends on your application) inspected and replaced if damaged or worn. All should be replaced at least every 250,000 brake cycles or 3 years, whichever occurs first.

