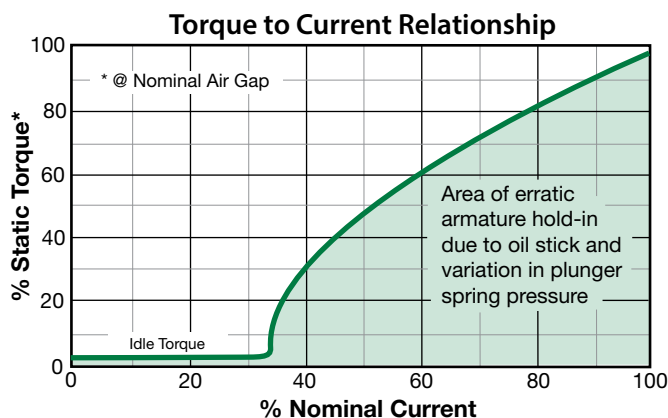


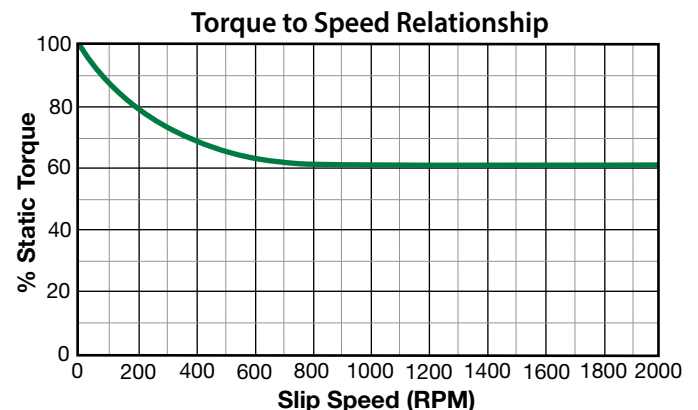
General Notes and Data

Consult SEPAc Engineering prior to making final selection.

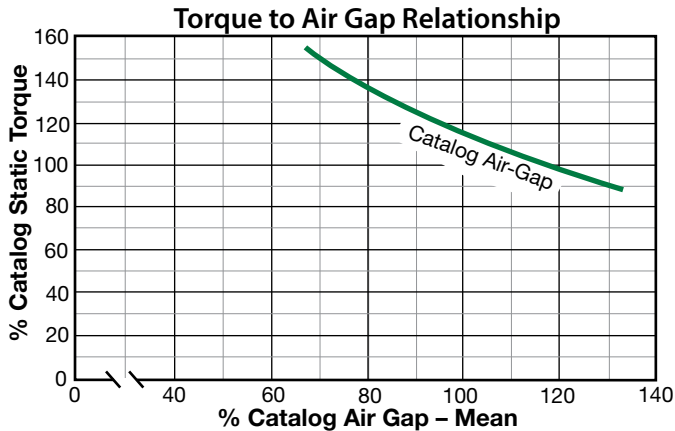
- All dimensions are in inches.
- Standard bore and keyway tolerances are in accordance with ANSI 9002-A86-1995. Bores are Class 1 clearance fit and keyways are commercial fit. Special tolerances can be supplied at added cost. Standard Metric bores per ANSI B4.2-1978 and keyways per BS 4235-1972 are available at no added cost. Maximum bore dimensions are based on using a standard key height.
- Standard stationary field model anti-rotation hole location is 30° clockwise from the leads when viewed from the magnet body end. Other holes and locations can be provided to meet specific customer requirements.
- Standard leads – 18AWG stranded conductor, UL 1180 (200 Deg. C, 300 Volt), 18" long. Conduit connectors and other leads and terminations available.
- Torque varies linearly over a range from approximately 40% to 100% rated current for in oil or dry type clutches and brakes. Torque of the in oil type clutches and brakes can be regulated on a broader range of approximately 20% to 100% of rated current. This torque regulation is important in slipping applications or where precise torque control is needed.
- Dowel holes in adapters are drilled approximately 0.015 undersized to allow for reaming at installation.



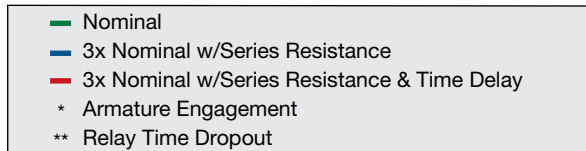
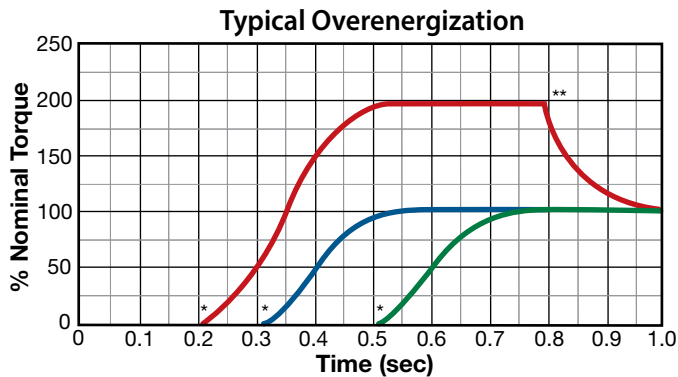
- Some models can only be used in oil. Other models can be used either in oil or dry based on using different friction disc materials. Consult SEPAc Engineering regarding the model you need. When using clutches or brakes in oil the oil level should not cover more than approximately 10% of the clutch or brake diameter. The viscosity of the oil used should not exceed 150 S.S.U. at 100°F. (SAE 10W)
- Units can be mounted in horizontal or vertical positions.
- Other sizes and configurations can be made to suit customer application requirements.
- The starting torque of a friction clutch or brake varies at the different speed, on engagement, of the driven and driving members changes. Multiple disc clutches and brakes have been designed for a minimum of variance at a maximum torque capacity. The area of any significant change in starting torque, due to relative speed, is from 0 RPM (static) to approximately 300 RPM. From that point to the maximum recommended speed, the curve assumes a nearly flat condition as shown on the starting torque vs. relative speed curve below. This curve assumes that the air gap is set at the recommended distance and that the coil is at continuous duty operating temperatures.



- In our technical data we have shown the recommended air gap settings for each size clutch and brake. Clutches and brakes set at these points will transmit our rated torque, have a minimum of idle torque, and require very little, if any, adjustment for wear, if the clutch has been properly applied. However, if required by the application, the torque capacity can be varied by means of an air gap adjustment. The following chart shows the effect of air gap adjustment on torque. Keep in mind that reducing the air gap below the catalog specification will increase idle torque.



12. Hubs on RFDC, SFDC and MDB models are machined at approximately .010 over the specialized clutch bore.
13. Spider bolt patterns shown are recommended and can be furnished at extra cost. Other patterns can also be furnished at extra cost. Consult SEPAC Engineering.
14. Overenergization is used when there is a need for higher torque or faster response time. A higher voltage is applied to the clutch or brake coil for a short period of time to accomplish this. This technique is also used on magnetically engaged brakes where a load needs to be stopped quickly.



15. Thermal capacity: $E \times C \leq Q \times K_1 K_2$

where:

E = BTU/Engagement calculated from the formulas (#9, #10 or #11) in the SEPAC Application and selection Guide.

C = Number of engagements per minute.

Q = Thermal Capacity (BTU/minute) for the model selected.

K₁ = Wet (with oil spray) 1.00

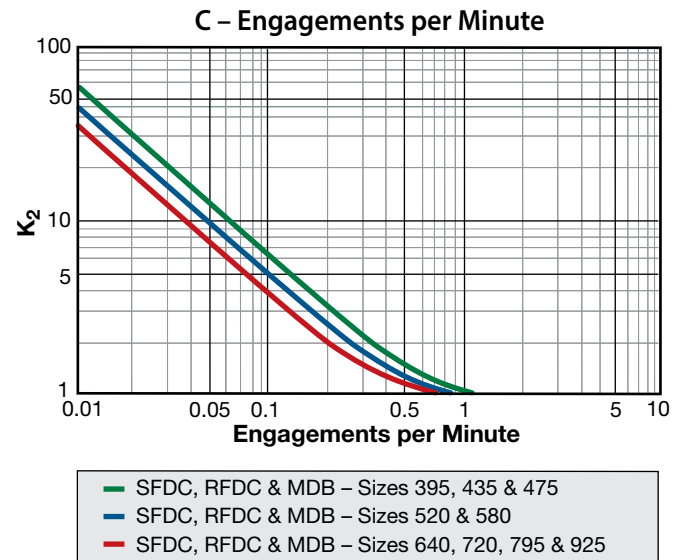
(Factors as high as 2.00 can be obtained by forcing oil through the discs)

Wet (10-20% submerged) 0.86

Dry (fan cooled) 0.74

Dry (no cooling) 0.53

K₂ = From chart below



NOTE: For thermal capacity of dry application, non-asbestos or bronze disc stacks, consult SEPAC Engineering.

FAQs

What if I don't see a brake/clutch in the catalog that fits my needs?

Our team regularly modifies product designs from the catalog or creates new products from the ground up to fit our customer's needs. Contact our engineering department to see if we have a product that is not listed in our catalog that will fit your needs, if there are modifications that can be made to an existing product design, or if we can make a completely unique design.

Can a brake/clutch be designed for use in my exotic environment?

Most likely – yes. At SEPAAC, we have designed products to be used in almost every environment imaginable. Contact us to discuss your specific environment.

Can we purchase a clutch/brake from your catalog with different mounting, or integration into our product?

Yes. Design for custom mounting and space/cost saving integrations are very common.

Which style of brake/clutch will have the highest torque-to-size ratio?

A tooth brake/clutch typically has 2-5 times more torque capacity for a given size than any other style of brake/clutch.

Can a brake/clutch be designed with a higher torque capacity than what is listed in the catalog?

Absolutely. Our engineering department can find a number of trade-offs that will allow a brake/clutch of a certain size to have a higher torque capacity. Some common changes include the use of self-locking teeth for tooth units, increasing the number of friction discs for friction disc units, increasing spring force on spring engaged units, and magnetic force on magnetically engaged units.

How can I reduce power required and/or heat generated?

The current required to hold a spring engaged brake/clutch is often much lower than the current required to

engage the unit. A two-step power supply can often be used to drastically reduce power consumption and heat generation.

Can a friction disc brake/clutch be used to stop a rotating load (dynamic stop)?

In most cases – yes. Stopping a rotating load generates heat and wears the discs, but occasional dynamic stops that have low enough energy so as to not damage the unit from heat are usually acceptable. Brakes/clutches can be designed to allow for more dynamic stopping of higher inertia and higher speed loads.

How much over the rated torque capacity will a brake/clutch continue to hold?

There are so many variables involved in the actual load at which a brake or clutch can no longer hold torque, that it can be anywhere from not far over the rated capacity, to several times the rated capacity. If you would like a clutch or brake with a maximum holding capacity that is close to the minimum holding capacity, there are design changes that we can make that will allow this.

Can a sensor be integrated with a brake/clutch to be sure that it has engaged or disengaged?

Yes. Many customers find it acceptable to sense that a clutch/brake is engaged or disengaged by sensing if the load is being transmitted or not. For those projects which require an extra level of assurance, we can add a sensor (usually an inductive proximity switch) to sense full engagement, full disengagement, or both.

Is the torque capacity of a friction disc clutch/brake the same as the rated capacity when the disc is rotating (dynamic)?

No. For most friction disc products, the torque rating reduces as the speed is increased, until about 300RPM, at which higher speeds do not have a large effect on torque rating.

Will back-EMF be generated when the coil de-energized?

Yes. A simple arc-suppression circuit is recommended for most applications.