

Friction Clutch Adjustment Instructions

Friction clutches need adjustment to ensure they slip at the correct torque, after the clutch has been “run in”, to account for wear, and if the clutch needs to slip at a different torque.

Assembly

Refer to Figure 1 and the accompanying bill of materials for information on the individual parts of the torque limiting friction clutch.

If the specific clutch is unknown, 1FC and 2FC clutches can be distinguished by measuring the adjustment nut. The nut on the 1FC clutches will measure 1-1/2” across while the nut on the 2FC clutches will measure 2”.

ITEM NO.	Part	QTY.
1	1FC/2FC Shaft: Bore size differs depending on model	1
2	1FC/2FC Bronze Bushing	1
3	1FC/2FC Friction Disc	2
4	1FC/2FC Pressure Plate	2
5	1FC/2FC Belleville Spring Washer	1 OR 2
6	1FC/2FC Adjustment Nut	1
7	Sprocket: Size differs depending on model	1
8	Set Screw #10-32 x 3/16”	3

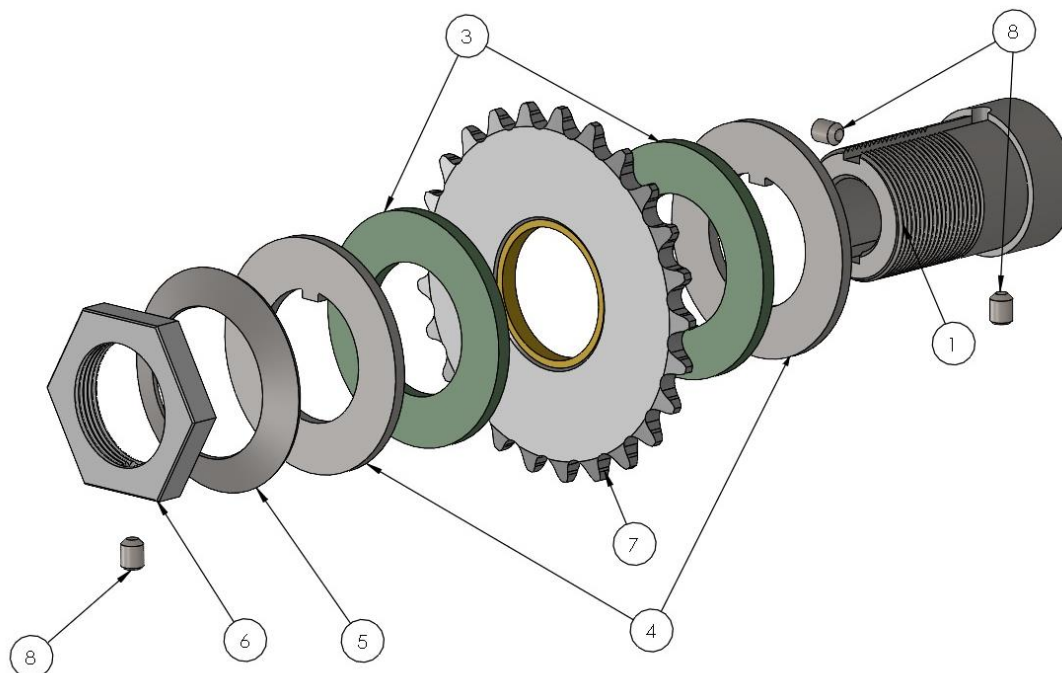


Figure 1

Running in

All friction clutches must be “run-in” to ensure they consistently slip at the intended forces, to achieve maximum break away capacities, and to ensure a maximum service life.

1. Adjust the nut on the friction clutch to approximately 25% of maximum spring capacity by tightening nut onto spring by hand and then rotating it a half turn.
2. Slip for 500 revolutions at 50 rpm or lower (10 minutes).
3. Allow the clutch to cool after this procedure before setting unit to the desired torque limit rating.

Torque Setting

1. To find the appropriate slip torque, attach a deflection style torque wrench to the output shaft of your application and measure the maximum force required to move the system through a cycle. Running torque is almost always lower than starting torque.
 - a. Setting the slip torque to this value will ensure that the clutch will protect the system if it sees an unusually high amount of torque.
2. A second method to find appropriate slip torque is to attach a spring scale to the sprocket chain and measure the pounds of force required to move the system through a cycle. Multiply this factor by the radius of the sprocket. The resulting value will be the inch pounds of torque required to drive the system.
3. To make an adjustment, first secure the clutch in a way that keeps it from rotating. This is typically done by holding the sprocket in the soft jaws of a bench vice.
4. Loosen set screw labeled in figure 2.

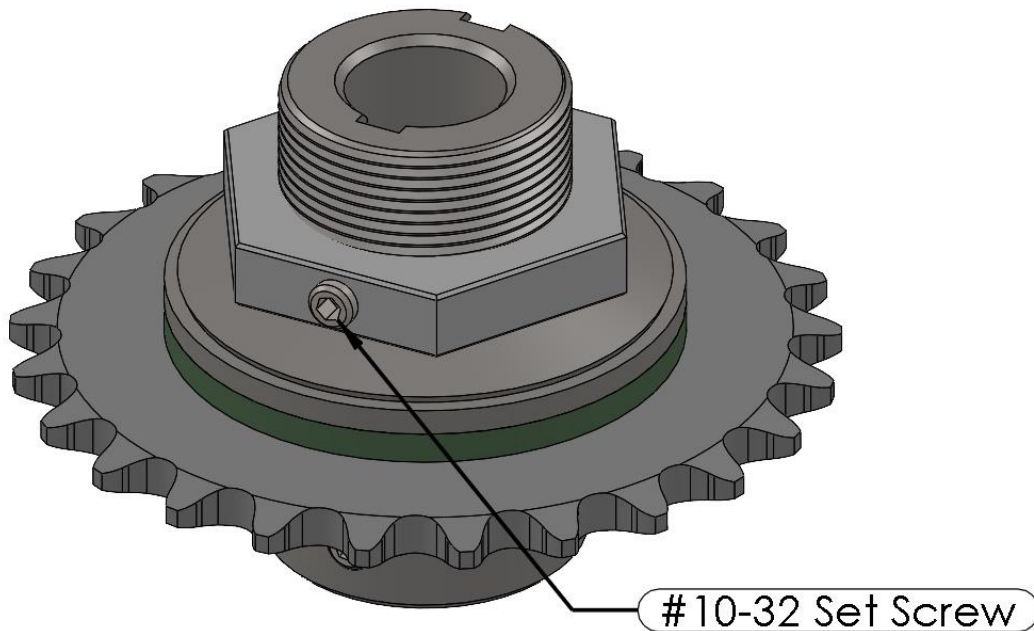


Figure 2

5. Use a wrench (1-1/2" for 1FC 2" for 2FC), channel lock pliers, or other device to turn the nut clockwise to increase slip torque, and counterclockwise to reduce slip torque.

DO NOT completely flatten the Belleville spring as this will not allow the clutch the function properly.

6. Insert the business end of the torque wrench fitted with a stub shaft into the bore of the clutch with a key or tighten set screw on stub shaft. Spin the wrench clockwise and counterclockwise and tighten the nut until the desired slip torque is measured. The shape of the disc spring does not permit assessing torque by exposed threads.
 - a. The breakaway torque will be slightly higher than the slip torque (5-10% higher) due to coefficients of dynamic and static friction.
7. Tighten set screw to lock adjustment nut in place (10 in. lbs.).

Setup

The service life of the clutch will be maximized and friction in the system will be minimized if a straight chain line can be achieved.

Caution

- Failure to properly set torque can result in a failure of the clutch to protect drive system and people as designed. This can lead to broken equipment, injuries and death.
- Friction discs must always be kept clean and free of oil. Exposure to contaminants will dramatically reduce the amount of force the clutch begins to slip at.
- Hersey Clutch company friction clutches are not designed to be operated above 300 degrees Fahrenheit. For such applications, contact Hersey Clutch Company for assistance.

Maintenance

- The Friction discs must always be kept clean and free of oil. Exposure to contaminants will dramatically reduce the amount of force the clutch begins to slip at.
- Friction clutches using a coil spring instead of a Belleville disc spring will require significantly fewer adjustments to compensate for wear.
- Replacement parts available from the Hersey Clutch Company. Refer to exploded view in Figure 1 for items.
- Do not use lubrication on any part of clutch if servicing.