

# 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, 1FCDC and 2FCDC clutches can be distinguished by measuring the outside diameter. 1FCDC clutches will have an outside diameter of approximately 2.75 inches and 2FCDC clutches will have an outside diameter of approximately 3.66 inches.

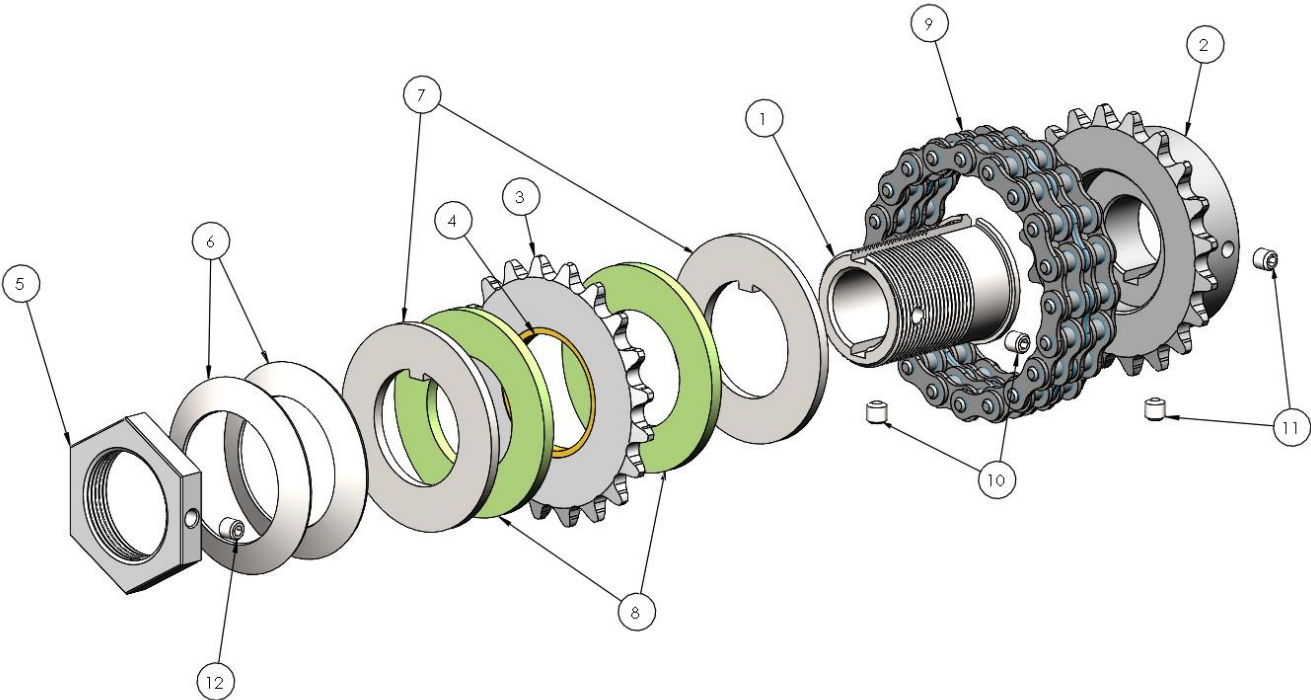


Figure 1

ITEM NO.	1FCDC	QTY.
1	1FCDC Shaft: Bore Size differs depending on model	1
2	1FCDC Output Sprocket	1
3	1FC Sprocket	1
4	1FCDC Bronze Bushing	1
5	1FC Adjustment Nut	1
6	1FC Belleville Spring Washer	2
7	1FC Pressure Plate	2
8	1FC Friction Disc	2
9	1FCDC Coupling Chain	1
10	Set Screw #10-32 x 3/16"	2
11	Set Screw #10-24 x 3/16"	2
12	Set Screw #10-32 x 3/16"	1

ITEM NO.	2FCDC	QTY.
1	2FCDC Shaft: Bore Size differs depending on model	1
2	2FCDC Output Sprocket	1
3	2FC Sprocket	1
4	2FCDC Bronze Bushing	1
5	2FC Adjustment Nut	1
6	2FC Belleville Spring Washer	2
7	2FC Pressure Plate	2
8	2FC Friction Disc	2
9	2FCDC Coupling Chain	1
10	Set Screw 1/4-28 x 1/4"	2
11	Set Screw 1/4-20 x 1/4"	2
12	Set Screw #10-32 x 3/16"	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. To make an adjustment, first secure the clutch in a way that keeps it from rotating. This is typically done by the holding output hub of clutch in a bench vice.
3. Loosen set screw labeled in figure 2.

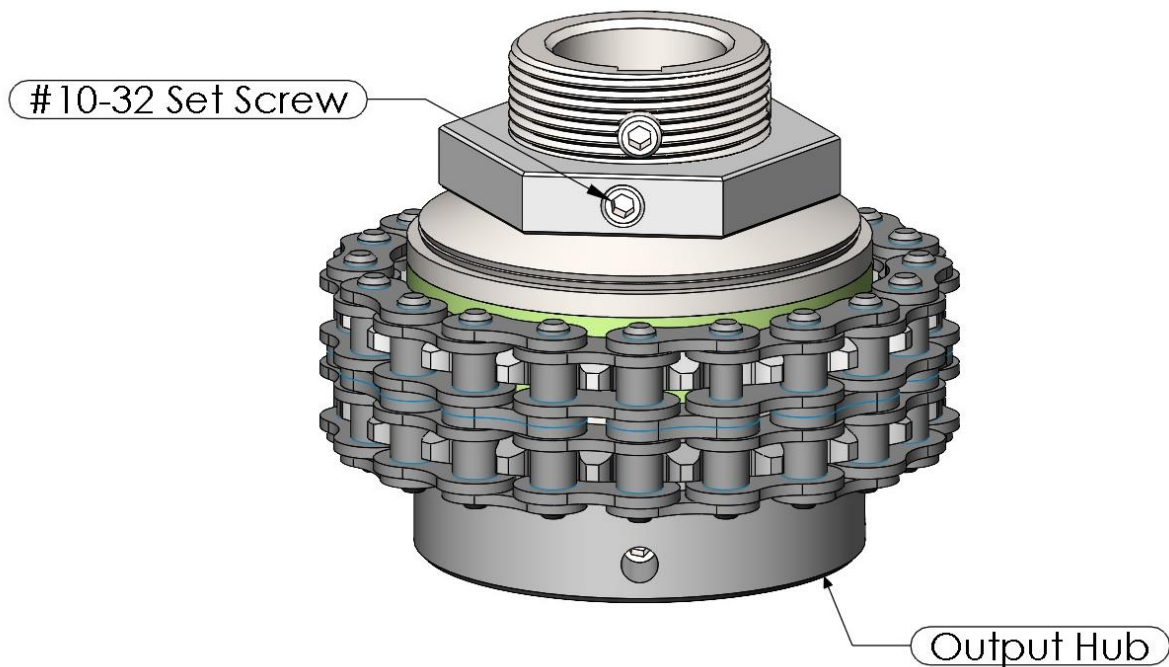


Figure 2

4. Use a wrench (1-1/2" for 1FCDC, 2" for 2FCDC), 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.**

5. 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.
6. Tighten set screw to lock adjustment nut in place (10 in. lbs.).

## Setup

Maximum acceptable angular misalignment of the input and output shafts is three degrees for all 1FCDC and 2FCDC clutches. Maximum acceptable parallel misalignment of shafts is 0.01 inches for all 1FCDC and 2FCDC clutches. A flexible coupling or torque limiting direct coupling is recommended if shafts cannot be aligned within acceptable ranges. Premature failure can result from improper shaft alignment.

## Caution

- Failure to properly set torque can result in a failure of the clutch to protect people and the drive system 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

- 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 are 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.