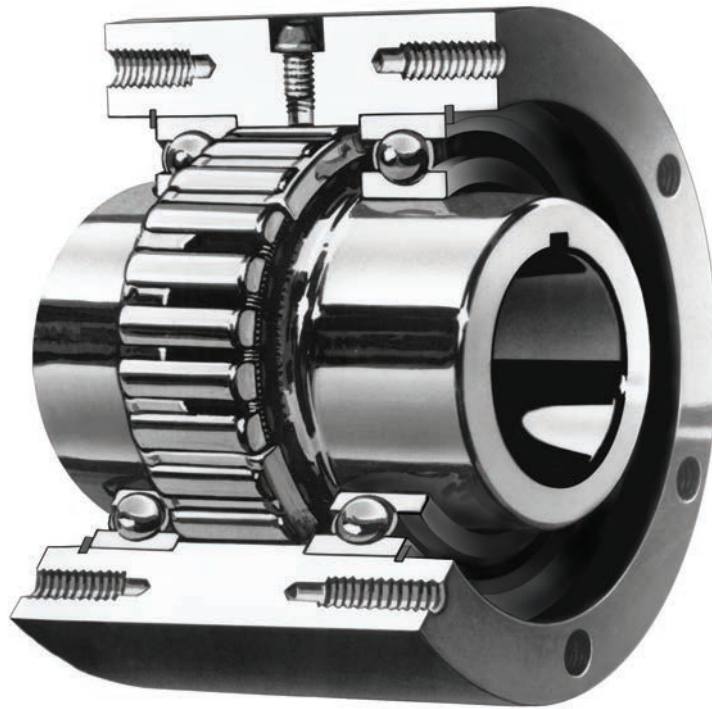


Special Purpose Overrunning Clutches EP 300 thru 1027 (Less Oil Seals)

P-222-30

BULLETIN 4701

Service & Installation Instructions



 **Formsprag**[®]
Clutch

An Altra Industrial Motion Company

Introduction

EP models are special purpose ball bearing clutches suitable for overrunning, backstopping and light duty indexing applications. They are ment to be installed internal to a speed reducer or other equipment.

- Formsprag ball bearing clutches mount on a through-shaft with the inner race driven by a key.
- The O.D. of the outer race is designed as a mounting surface or pilot for attaching the driven member.
- The O.D. of the outer race is ground concentric with the bore to provide for proper alignment and installation.

⚠ WARNING Failure to follow these instructions may result in product damage, equipment damage, and serious or fatal injury to personnel.

Pre-installation Check

Before installing, check:

1. Shaft to Bore fit:

Clutch Bore	Shaft Fit Guide*
0 to 2 inches dia.	Line fit to .002 inches loose
2 to 4 inches dia.	Line fit to .0025 inches loose
4 to 7 inches dia.	Line fit to .003 inches loose

*If a press fit is necessary under special circumstances, do not exceed .001 inch tight.

In some cases, builders of equipment in which a Formsprag clutch is used, specify other shaft fit limits than those listed. In this event, direct questions concerning fit limits to the equipment manufacturer.

2. Key and keyseat

Hardness: Use a hardened key, from 30 to 40 Rockwell "C" scale. Use materials AISI 1141, 1045 or 4130

Overrunning & Backstopping

Fit: Break edges of the key before installing, to prevent any bearing at these points. Install with a push fit. Be sure the key seats squarely. Do not use force fit.

Length: The key must be equal to the length of the inner race for proper engagement.

Indexing

Fit: Fit the key up to .001 inch interference on Width dimension to prevent loosening in indexing service. Do no exceed .001 inch tight.

3. Rotation

Check the clutch for the proper rotation in each application. Turn the inner race to check overrunning direction.

Installation

1. Mount the clutch and key on the shaft. Verify correct clutch rotation by overrunning the clutch by hand.

Note: Oil lubricated clutches should be mounted on horizontal shafts only. For vertical shaft mountings of oil lubricated clutches contact Formsprag Clutch.

2. Apply pressure to end face of the clutch inner race only when mounting onto shaft.

Application of pressure to the outer race could preload the bearings excessively. For oil lubricated clutches, to simplify mounting, if a .001" interference fit is required, (this is the tightest allowable) immerse the clutch in hot, clean oil (not to exceed 200°F/93°C) for ten to fifteen minutes before mounting.

3. Secure the clutch in position on the shaft.

Use a lock washer and nut, a flat washer fastened to the shaft end with a screw, snap rings, collars, etc. to keep the clutch in position on the shaft.

4. Mount attaching parts to the clutch outer race as required by the application.

1. All fasteners are recommended to be grade 8 bolts.

If a torque arm is to be mounted to the clutch, allow .25 inch to .50 inch clearance between stops and torque arm.

Tapped mounting holes are provided in each end of the outer race. Center the gear, pulley or sheave on the outer race. Avoid excessive over-hung loads.

Check with Formsprag Clutch if the clutch must support large side loads during overrunning cycle of operation.

5. All Formsprag EP model clutches are shipped dry from the factory. However, check that lubrication must be added at installation.

6. Check for proper installation by overrunning (free-wheeling) the clutch by hand.

Lubrication

Proper lubrication and lubricant maintenance are the most important single maintenance factors for long, effective, trouble-free clutch operation. Read the following instructions and follow them carefully for maximum performance and utilization of Formsprag overrunning clutches. **Always recheck oil level in clutch after installation and before start up.**

Oil Lubrication

Use oils selected from the following table according to the application and ambient temperature existing at the clutch.

Note: EP-300 thru 1027 clutches are shipped from Formsprag dry.

For applications where the ambient temperature exceeds +150°F (+65°C) or are below 20°F (-7°C) consult Formsprag Clutch.

Temperature Range	Recommended Oil Lubricant
+20°F to +150°F (-7°C to +65°C) (Maximum permissible ambient temperature)	Oils that are within the range of ISO 32 thru 320 are acceptable as long as the viscosity does NOT exceed 20,000 cSt.

Important: Do not mix lubricating oils, they are not compatible. When switching from one brand to another, drain old oil and flush clutch with mineral spirits. Do not use carbon tetrachloride before adding new oil.

The use of lubricants in clutch assemblies, other than as listed, can result in improper sprag engagement. Improper sprag engagement may cause personal injury or property damage.

⚠ WARNING Formsprag Clutch is not responsible for any changes made by the manufacturers in their lubricants.

Oil Lubrication Maintenance

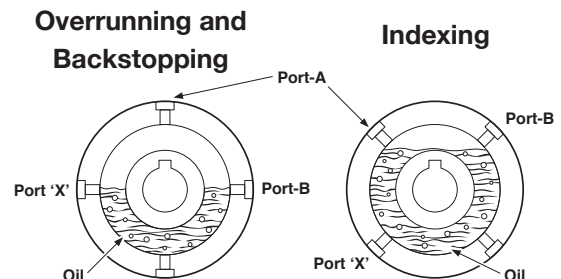
1. Check the oil level once a month or every 160 hours of operation, whichever occurs first. For indexing applications and indexing in excess of 150 strokes a minute, oiling may be required at shorter intervals.
2. Add oil if necessary to maintain the proper fluid level.

Overrunning, Backstopping – 1/2 full

Indexing – 7/8 full

Grease Lubrication

Please call Formsprag Engineering for help in selecting the proper grease.



Note: Models EP-300 through -600 do not have Port 'X'. Position as shown without Port 'X'

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Grease Lubrication

Please call Formsprag Engineering for help in selecting the proper grease.

- Use no other greases unless a specific recommendation has been made by Formsprag Clutch.
- Grease lubrication may be used if:
 - The clutch is in accessible for frequent maintenance.
 - Conditions do not permit the type of maintenance required for oil lubricated clutches.
 - The clutch is mounted on a vertical shaft.
 - The clutch is operated in the presence of severe abrasive dust.
- Do not attempt to substitute grease lubrication in a standard oil lubricated clutch. The use of grease lubrication in a clutch intended for oil could cause a malfunction.
- Formsprag Clutch can convert in-service clutches from oil to grease lubrication. Changes in internal construction are usually required. Consult Formsprag Service Department, giving complete model number.

Use Recommended Greases Only

Packaging

Your Formsprag clutch, carefully wrapped in Vapor Inhibitor type activated paper for corrosion protection and packed in a shipping box conforming to the requirements of Rule 41, Uniform Freight Classification, may be stored for up to two (2) years and reshipped without added packaging.

Models 300 through 700 are packed in corrugated board shipping boxes and models 750 thru 1027 in wooden, style 4 shipping boxes with integral skids. (See Oil Lubrication Maintenance for information about clutches which have been stored for extended periods.) To store in an unprotected area or if original package is opened, wrap the box with a waterproof covering.

Rotating Equipment

Rotating equipment is potentially dangerous and should be properly guarded. The user should check for all applicable safety codes in his area and provide a suitable guard.

For additional technical and dimensional information on EP clutches refer to Formsprag Overrunning Clutch Catalog P-956 or call 800-927-3262.

Warranty

Formsprag Clutch LLC warrants that it will repair or replace (whichever in its sole discretion it deems advisable) any product it manufactured and sold which proves to be defective in material or workmanship within a period of one (1) year from date of original purchase for consumer, commercial or industrial use. This warranty extends only to the original purchaser and is not transferable or assignable without Formsprag LLC's prior consent.

This warranty covers normal use and does not cover damage or defect which results from alterations, accident, neglect, disassembly, or improper installation, operation, or maintenance.

Formsprag LLC's obligation under this warranty is limited to the repair or replacement of the defective product. In no event shall Formsprag LLC be liable for consequential, indirect or incidental damages of any kind incurred by reason of manufacture, sale or use of any defective product. Formsprag LLC neither assumes nor authorizes any other person to give any other warranty or to assume any other obligation or liability on its behalf.



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