

How to Use this Manual

The following instructions and recommendations apply to standard Falk 1045 NRTH Style B backstops. Their performance and life depend largely upon how they are installed and serviced. Drawings are representative of this series of backstops.

When requesting information specify the M.O. number, backstop size, model number, maximum running rpm, torque rating, and date indicated on the backstop nameplate.

This manual provides detailed instructions on installation, maintenance, and parts identification. Use the following Table of Contents to locate required information.

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CAREFULLY FOLLOW THE INSTRUCTIONS IN THIS MANUAL FOR OPTIMUM PERFORMANCE AND TROUBLE FREE SERVICE.

Introduction

Rexnord True Hold backstops are precision built devices designed to protect inclined conveyors or vertical elevators from the dangers of gravity accelerated reverse runaway. To be assured of reliable protection and the longest possible service life, it is important that the following recommendations be observed for the installation, lubrication, and maintenance of Rexnord backstops.

As soon as the backstop has been received, examine it carefully for damage that may have occurred in transit and report any damage to the transit company and Rexnord immediately. All tags and manuals attached to the backstop should be carefully read before placing the backstop in operation and then filed for future reference.

The various component parts referred to may be readily identified from Figure 1, Page 2.

All backstops are shipped from Rexnord with Lubriplate Aero, NLGI#1 grease lubricant.

If the backstop is to be stored for an extended period of time (over 3 months) before installation, see the Long Term Storage section on Page 3 for instructions.

Warranty — Rexnord Industries, LLC (the "Company") warrants that Falk NRTH backstops (I) conform to Company's published specifications, and (II) are free from defects of material for one (1) year from the date of shipment.

Company does not warrant any non-Company branded products or components (manufacturer's warranty applies) or any defects in , damage to, or failure of products caused by:

- (I) dynamic vibrations imposed by the drive system in which such products are installed unless the nature of such vibrations has been defined and accepted in writing by Company as a condition of operation;
- (II) failure to provide suitable installation environment;
- (III) use for purposes other than those for which designed, or other abuse or misuse;
- (IV) unauthorized attachments, modifications or disassembly, or
- (V) mishandling during shipping.

Safety Codes & General Precautions

Warning: Consult applicable local and national safety codes for proper guarding of rotating members. Lock out power source and remove all external loads from drive before servicing drive or accessories.

DISMANTLING, REPAIR & PARTS REPLACEMENT — See Figure 1, Page 2. The backstop and normal associated equipment (shaft, pulleys, etc.) involve moving parts, therefore consult local, state, OSHA and ANSI safety codes for proper guarding of revolving parts and possible pinch points. (A pinch point occurs at the contact point between the backstop torque arm and support, and between the torque arm and stirrup.)

Carefully read and follow all supplementary instructions and tags attached to the backstop and then file for future reference.

Operate the backstop within the torque rating and overrunning speed, listed on the nameplate. Follow installation and lubrication instructions in this manual.

When removing backstop from shaft, do not apply heat to the backstop. Apply axial force to the hub (inner race) of the backstop only.

Damage may occur to the backstop if it remains inoperative under full load for extended periods of time.

If the shaft was accidentally rotated in the wrong direction of rotation at start-up, the backstop may have been damaged. Return the backstop to the Factory for inspection.

Falk NRTH Style B backstops use a sprag design that does not allow motion in one direction and runs freely in the other direction.

Application Requirements

BACKSTOP APPLICATION — The 1045 NRTH Style B backstop is designed to prevent reverse rotation in applications such as inclined conveyors, bucket elevators, fans, rotary pumps and kilns. If local safety codes permit, the backstop may be used as a backup or a brake on these applications, but NOT in people conveying systems such as elevators, manlifts, ski tows or ski lifts. Also DO NOT use the backstop as a substitute for a brake.

OPERATING TEMPERATURES — Enclosure of the backstop may cause overheating. Provide adequate ventilation. Backstop operating temperatures, at maximum overrunning speed, may exceed 122°F (50°C) above ambient. Determine the effect of this temperature on the driven equipment and provide cooling if necessary.

If a backstop operates in the sun at ambient temperatures over 100°F (38°C), then special measures should be taken to protect the backstop from solar energy. This protection can consist of a canopy over the backstop or reflective paint on the

backstop. If neither is possible, a cooling device such as a fan may be required to prevent the backstop temperature from exceeding the allowable maximum of 200°F (93°C).

INDEXING — NRTH backstops can be used for indexing service. Refer application data to the Factory for selection. Indexing is defined as continuous cyclic or periodic application of the backstop as encountered in conversion of reciprocating or oscillating motion into intermittent linear motion.

JOGGING — Defined as start/stop movement with jerking or jolting motion is not permissible.

EXPLOSIVE ATMOSPHERES — The purchaser is responsible for taking adequate precautions to prevent spark generation in explosive atmospheres. Consideration should be given to spark generation that may occur when the torque arm strikes the stirrup.

CHEMICAL ATMOSPHERES — The backstop may be damaged if exposed to certain types of chemicals or vapors: for example, potash dust, chlorine gas, carbon tetrachloride, etc. These materials may cause deterioration of the seals.

AXIAL RETENTION — Refer to Page 3, Installation section, Paragraph B for Axial Retention.

Figure 1

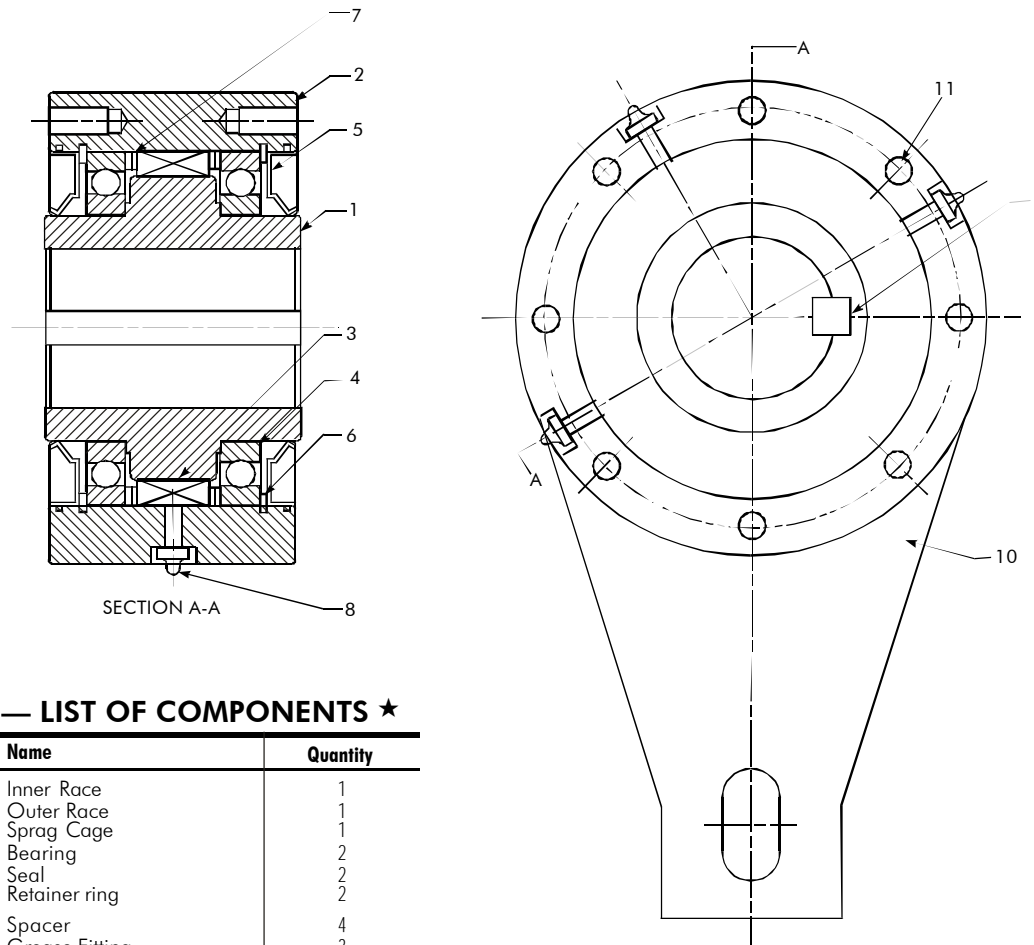


Table 1 — LIST OF COMPONENTS ★

Item	Name	Quantity
1	Inner Race	1
2	Outer Race	1
3	Sprag Cage	1
4	Bearing	2
5	Seal	2
6	Retainer ring	2
7	Spacer	4
8	Grease Fitting	3
9	Key	1
10	Torque Arm	1
11	Torque Arm Fasteners	8

★ Components supplied with backstop.

TABLE 2 — Backstop Shaft Fits

Nominal Diameter	Nominal Shaft Tolerance	Nominal Bore Dia Tolerance	Bore - Shaft Min-Max Clearances
Inch (")			
1.7500"-2.5000"	+ .0000" - .0005"	+ .0005" + .0015"	.0005" - .0020"
Metric (mm)			
44 - 50 mm	+ .002/.018 k6	+ .025/.050 F7	.007 - .048
Over 50 to 64 mm	+ .011/.030 m6	+ .060/.090 E7	.030 - .079

General Instructions

BACKSTOP-SHAFT FITS — The shaft must have a 125 micro inch (3,2 micro meters) or finer finish and clearance fits specified in Table 2 above.

KEYS & KEYWAYS — Keys to be used with 1045 NRTH backstops are furnished by Rexnord. They are mild steel. The keys are side-fitted, full length, and must not be excessively tight in order to avoid distortion of the inner race.

BACKSTOP MOUNTING POSITIONS — The backstop rotational axis must be horizontal within 5° for all applications. The NRTH backstop torque arm is capable of being mounted at any desired angle, however a horizontal mounting at 0° or 180° is preferred.

TORQUE ARM STOPS (OR STIRRUP) — The torque arm stops must be designed to resist the force developed by the actual torque applied to the backstop.

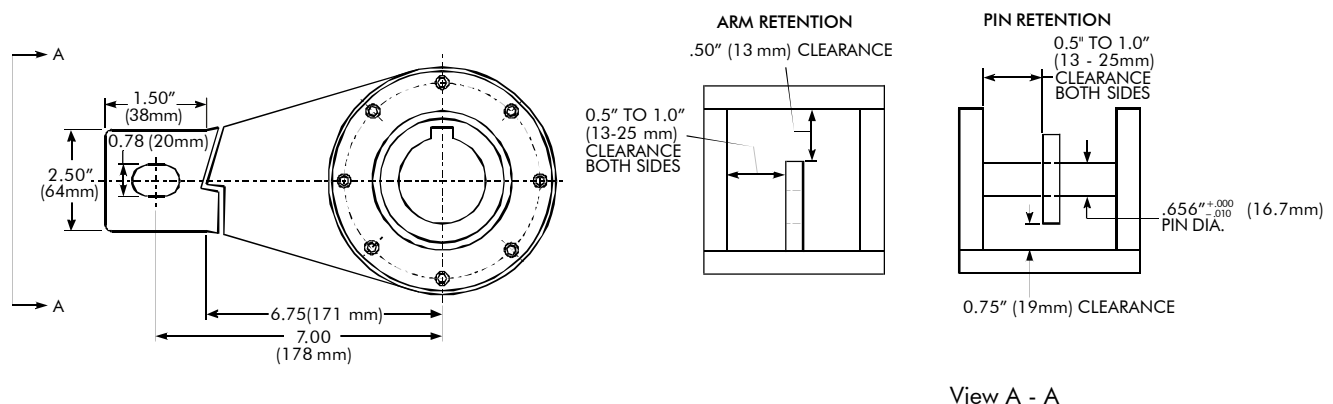
The minimum recommended distance to the torque arm stop is as illustrated in Figure 2 below. Use torque arm stops capable of withstanding the torque arm reaction force of 6000 lb (26.7 Kn).

The torque arm must be free to move within the stirrup or on pin. Provide clearance on three sides per Figure 2 below.

DO NOT restrict torque arm movement by welding or securing the torque arm to any supporting structure.

Locate the torque arm support surface parallel ($\pm 1/2^\circ$) to the torque arm surface.

Prevent accumulation of any foreign material or ice around torque arm and torque arm stirrup which could restrict free movement of the torque arm.

Figure 2


Long Term Storage

Backstops should be stored inside, if possible, in a clean and dry area. Once every two months the inner race should be rotated by hand to lubricate the rotating elements.

Exposed, unpainted surfaces should be “brush painted” with a rust preventative.

Installation

A. Check for proper free shaft rotation – The backstop is symmetrical, which allows it to be mounted for the desired direction of free shaft rotation by rotating it end for end.

The arrow inscribed on the face of the inner race (Part #1 – See Figure 1, Table 1, Page 2) indicates the direction of free shaft rotation. Before mounting the backstop on the shaft, be sure to check direction of free rotation.

B. Axial Retention - Since backstops are not a tight fit on shafts, it is important that the backstop is axially retained on the shaft to prevent it from “walking”, as this may cause the end of the torque arm to contact the stirrup and cause premature bearing failure.

Three approved methods of axial retention incorporate the use of shaft collars, retention keys, or keeper plates. The method to use for axial retention is the responsibility of the user.

C. Mount Backstop on Shaft - Backstop bores are finished to size for an *easy push fit* on a shaft that is straight and not tapered.

Coat the shaft with an anti-seizing compound or light oil for easy mounting and future removal of the backstop.

Check again to *make certain* that the arrow on the backstop inner race face is in the same direction as the desired free shaft rotation.

If the torque arm (Part #10 – See Figure 1, Table 1, Page 2) is to be mounted on the *inboard* face (drive side) of the backstop, then slip torque arm onto the shaft *prior* to mounting the backstop.

Push the backstop onto the shaft, taking care to push only on the face of the inner race, thus eliminating potential damage to the bearings in the backstop. **Do Not Force Backstop Onto Shaft**

If evidence of damage during assembly caused by disregard of the above instructions is readily traceable, Rexnord will not be held responsible for failure of such affected part(s).

Do Not Use Tapered Keys. Keys Must Be Straight – Install the key provided (Part #9 – See Figure 1, Table 1, Page 2) into the keyway. If necessary, the key may be “field-dressed” to accommodate proper fit. The key should be “side-fitted”. To provide for adequate top of key clearance, the straight keyway in the bore of the backstop has been made slightly deeper than standard.

For backstops installed at the end of the shaft, an end cover may be provided to enclose the rotating components. Consult local and national safety codes for proper guarding of rotating components.

Attach Torque Arm to Backstop (After Rotation Check)

Attach torque arm to the backstop with (8) 3/8”–24 x 1.0, SAE Grade 8 Hex Socket Head Cap Screws (provided). Torque arm fasteners should be tightened to 45-54 lb-ft (61-73 Nm).

Do not fasten torque arm end rigidly to steel framework in angular or axial position.

Torque arm end should have a minimum of .50” (13mm) top clearance in its stirrup to make certain that it does not rust in or pack tight with foreign matter. Approximately .50” to 1” (13-25mm) clearance should be provided at each side of the torque arm for axial positioning. (See Figure 2)

Required Torque Arm Reaction Force is 6,000 pounds (26.7 Kn). It is the user’s responsibility to design and manufacture the torque arm stirrup to withstand the reaction force listed.

The backstop must be centered on the shaft to prevent possible bearing damage from misalignment that might occur if the torque arm is held rigid. Also, if the end of the torque arm is twisted crosswise, a pinching action may be imposed on the bearings and cause damage.

If the shaft alignment position changes in time, the previous precautions will allow the backstop to remain centered on the shaft without danger of pinching or skewing caused by a rigidly fastened torque arm end.

Safe backstop mounting is possible at any desired angle of the torque arm. However, straight vertical mounting is **not** recommended. A minimum angle of approximately 5 degrees from vertical should be maintained. The backstop rotational axis must be horizontal within 5° for all applications.

If mounted downward through a floor slot, a suitable boot or hood should be placed around the torque arm at or above the floor level to keep foreign matter from restricting possible torque arm movement at the floor opening.

Lubrication

These backstops are lubricated at the factory with Lubriplate “Aero” NLGI #1 grease. Contact Rexnord if alternative lubrication is to be used.

CAUTION: Greases containing high lubricity or EP additives must not be used in these backstops. Never use carbon tetrachloride, which is detrimental to neoprene seals.

WARNING: The use of improper lubricants could cause a malfunction resulting in equipment damage.

Maintenance

Lubrication maintenance should not be performed while equipment is in operation.

Grease lubrication maintenance should be performed every two to six months, depending on the severity of the application. Procedures for grease maintenance are as follows:

Purge dirty grease from the backstop by adding clean grease through all three grease fittings with Lubriplate “Aero” NLGI #1 grease.

Slowly rotate the backstop by hand to ensure even distribution and continue to add clean grease until all dirty grease is purged from under the seals.

Note: Seals are reversed so grease will easily purge from the backstop.

Under normal conditions, relubrication is recommended at least every six months. More frequent relubrication is recommended at speeds over 1000 rpm, backstop temperatures over 200°F (93°C), or severe operating conditions may require more frequent changes.

Alternate Grease

Lubriplate “low temp” or any white NLGI #1 non EP type grease can be used. Using these greases will not require complete purging of the original grease. Follow the re-greasing interval listed above for the new grease.

Dismantling

Do not attempt to service or remove the backstop before removing load. **Note:** This backstop is not designed to be rebuilt. If it fails, contact the Factory for a new replacement backstop.