

# Diaphragm Brake




Models 8K & 12K



In accordance with Nexen's established policy of constant product improvement, the specifications contained in this manual are subject to change without notice. Technical data listed in this manual are based on the latest information available at the time of printing and are also subject to change without notice.

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	<div data-bbox="537 562 834 617"> <b>DANGER</b></div> <p>Read this manual carefully before installation and operation. Follow Nexen's instructions and integrate this unit into your system with care. This unit should be installed, operated and maintained by qualified personnel <b>ONLY</b>. Improper installation can damage your system, cause injury or death. Comply with all applicable codes.</p>	
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This document is the original, non-translated, version.

Conformity Declaration: In accordance with Appendix II B of CE Machinery Directive (2006/42/EC):

A Declaration of Incorporation of Partly Completed Machinery evaluation for the applicable EU directives was carried out for this product in accordance with the Machinery Directive. The declaration of incorporation is set out in writing in a separate document and can be requested if required.

This machinery is incomplete and must not be put into service until the machinery into which it is to be incorporated has been declared in conformity with the applicable provisions of the Directive.

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## GENERAL SPECIFICATIONS


Specifications	
Torque	Up to 424 Nm (3750 in-lbs)
Actuation Pressure	1 - 5.5 bar (14.5 - 80 psi)
Service Temperature	4.5° - 104° C (40° - 220° F)
Approximate Weight	<b>Brake:</b> Up to 8.2 kg (18 lbs) <b>Drum:</b> Up to 14.5 kg (32 lbs)

## GENERAL SAFETY PRECAUTIONS




**CAUTION**

Use appropriate guarding for moving components. Failure to guard could result in serious bodily injury.




**WARNING**

This product is capable of emitting a spark if misused, therefore is not recommended for use in any explosive environment.




**CAUTION**

Watch for sharp features when interacting with this product. The parts have complex shapes and machined edges.




**WARNING**

Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards."



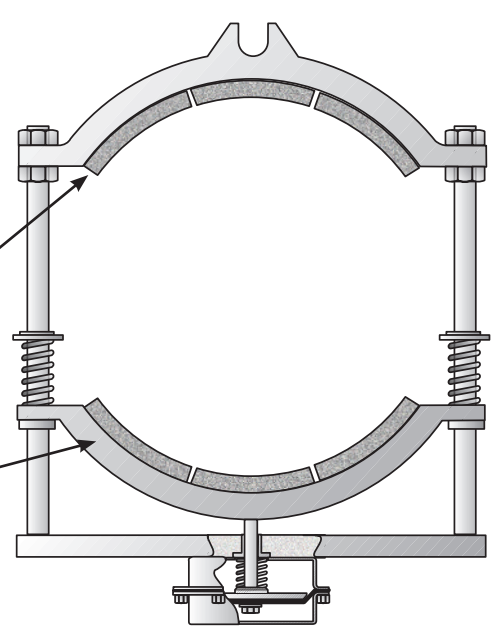
**CAUTION**


This product has possible pinch points. Care should be taken when interacting with this product.



**CAUTION**

This product has possible pinch points. Care should be taken when interacting with this product.





**CAUTION**

Surface temperature may exceed safe handling limits during operation. Do not touch.

## INSTALLATION

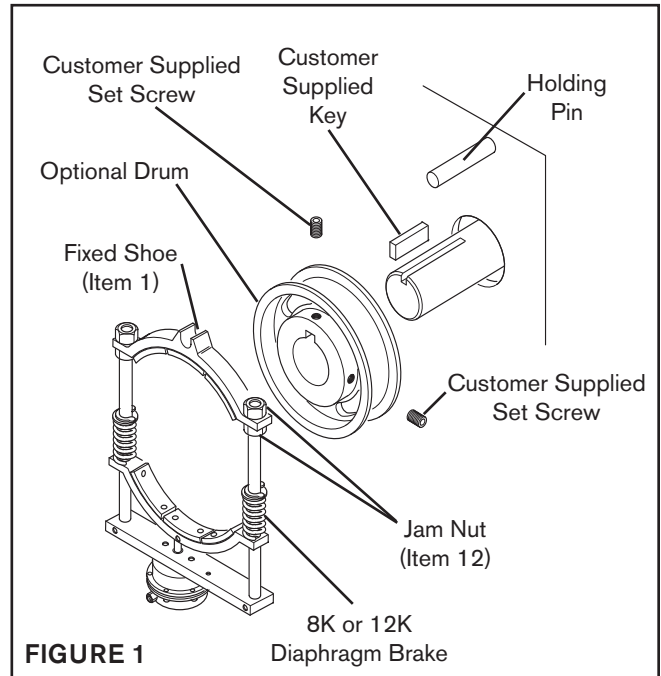
### BRAKE WITH OPTIONAL DRUM

#### REFER TO FIGURE 1.

1. Insert a customer supplied Key onto the shaft.
2. Slide the optional Drum over the customer supplied Key and onto the shaft.
3. Secure the optional Drum to the shaft using two customer supplied Set Screws.
4. Position the Diaphragm Brake on the optional Drum.
5. Using a customer supplied Holding Pin, secure the Diaphragm Brake in place with the Holding Pin passing through the slot in the Diaphragm Brake.

#### NOTE

Allow sufficient clearance between the Friction Facings (Item 3) and the optional Drum to allow free rotation of the Drum.



6. Adjust the Fixed Shoe (Item 1) by loosening the Jam Nuts (Item 12).
7. Tighten the Jam Nuts (Item 12).

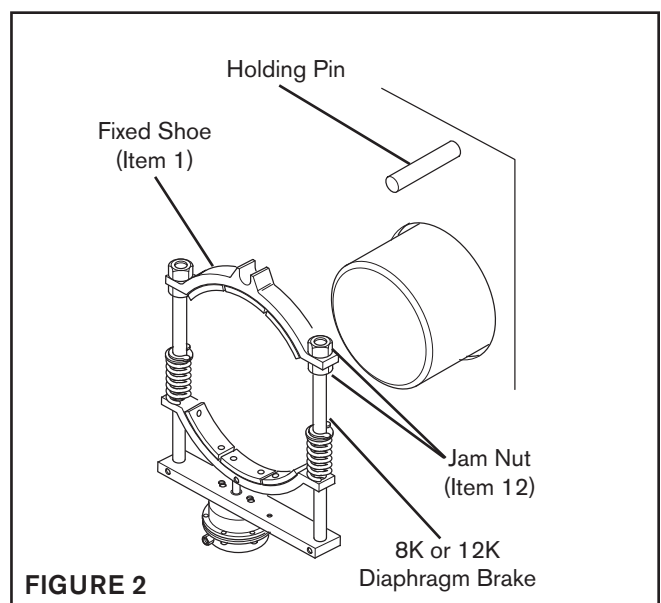
### BRAKE WITHOUT OPTIONAL DRUM

#### REFER TO FIGURE 2.

1. Position the Diaphragm Brake on the shaft.
2. Using a customer supplied Holding Pin, secure the Diaphragm Brake in place with the Holding Pin passing through the slot in the Diaphragm Brake.

#### NOTE

Allow sufficient clearance between the Friction Facings (Item 3) and the shaft to allow free rotation of the shaft.



3. Adjust the Fixed Shoe (Item 1) by loosening the Jam Nuts (Item 12).
3. Tighten the Jam Nuts (Item 12).

## LUBRICATION

### NOTE

Nexen pneumatically actuated devices require clean, pressure regulated air for maximum performance and life. All seals in Nexen pneumatically operated devices are lubricated for life, and do not require additional lubrication.

However, some customers prefer to use an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber. This is acceptable, but care must be taken to ensure once an air mist lubrication system is used, it is continually used over the life of the product as the oil mist may wash free the factory installed lubrication.

Locate the lubricator above and within ten feet of the product, and use low viscosity oil such as SAE-10.

Synthetic lubricants are not recommended.

## LUBRICATOR DRIP RATE SETTINGS



### CAUTION

These settings are for Nexen supplied lubricators. If you are not using a Nexen lubricator, calibration must follow the manufacturer's suggested procedure.

1. Close and disconnect the air line from the unit.
2. Turn the Lubricator Adjustment Knob counterclockwise three complete turns.
3. Open the air line.
4. Close the air line to the unit when a drop of oil forms in the Lubricator Sight Gage.
5. Connect the air line to the unit.
6. Turn the Lubricator Adjustment Knob clockwise until closed.
7. Turn the Lubricator Adjustment Knob counterclockwise one-third turn.
8. Open the air line to the unit.

## AIR CONNECTIONS

All Nexen pneumatically actuated devices require clean, dry air that meets or exceeds ISO 8573.1:2001 Class 4.4.3 to quality.

### NOTE

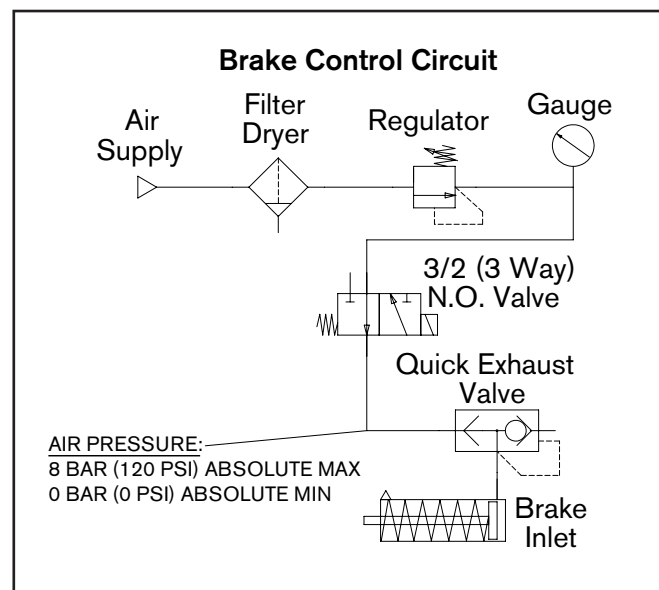
For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the unit. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.




### CAUTION

Low air pressure will cause slippage and overheating. Excessive air pressure will cause abrupt starts and stops, reducing product life.

The following is a common air supply scheme used with this product. This is an example and not an all-inclusive list. All air circuits to be used with this product must be designed following ISO 4414 guidelines.




## OPERATION



**WARNING**


Ensure proper guarding of the product is used. Nexen recommends the machine builder design guarding in compliance with OSHA 29 CFR 1910 "Occupational Safety and Health Hazards."



**CAUTION**


Never exceed life of facing material. Facing life depends on the volume of material and the total energy over the life of the unit. Expected life (in hrs) can be found by:

$$\text{Time} = \frac{\text{Volume}}{(\text{Power} \cdot \text{Wear Rate})}$$



**WARNING**

Never exceed maximum operating speeds listed for your product (See Table 1).



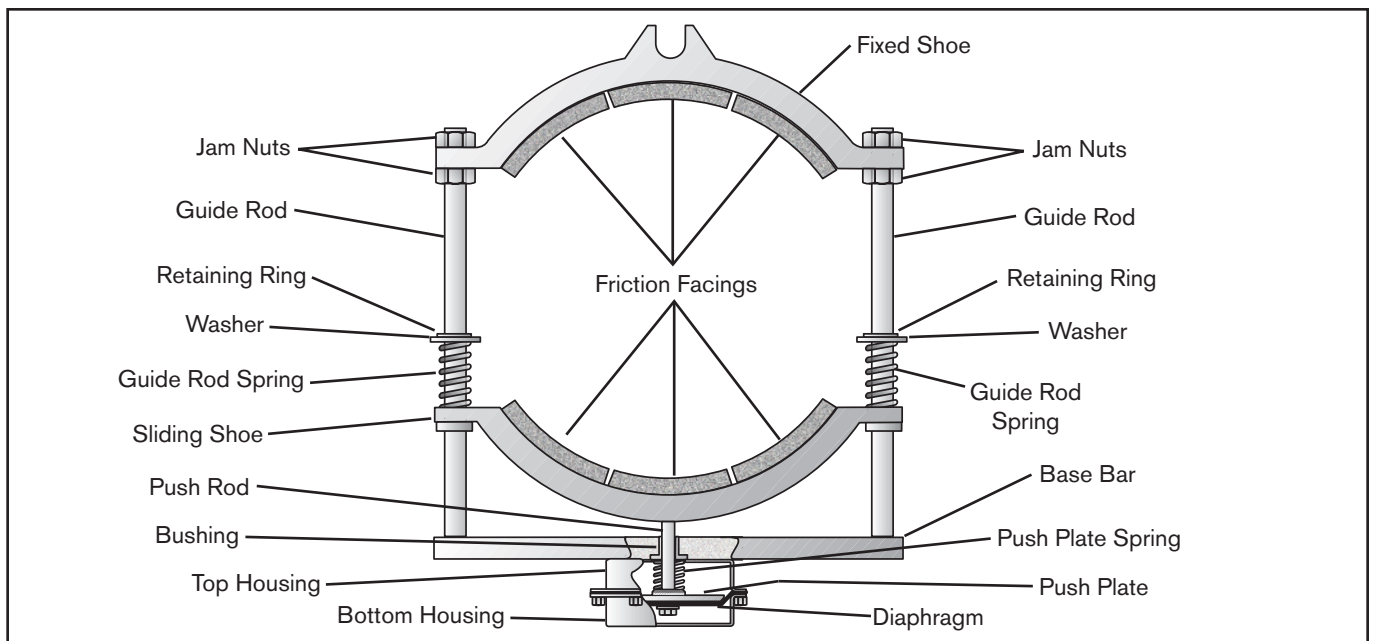
**CAUTION**

The temperature limits for this product line are 4.5° - 104° C (40°-220° F).

**TABLE 1 Maximum Operating Speeds**

Model	RPM
8K Brake	2700
12K Brake	1800

## TROUBLESHOOTING



Symptom	Probable Cause	Solution
Failure to Engage	Ruptured Diaphragm	Replace the Diaphragm.
	Faulty air controls	Check the air controls for proper operation.
Failure to Disengage	Faulty or damaged Guide Rod Compression Springs	Replace the Guide Rod Compression Springs.
	Faulty or damaged Push Plate Spring	Replace the Push Plate Spring.
	Faulty air controls	Check the air controls for proper operation.
8K or 12K Diaphragm Brake Slippage	Foreign material on the Optional Brake Drum or on the shaft	Clean the Optional Brake Drum or shaft.
	Foreign material on the Friction Facings	Replace the Friction Facings.
	8k or 12K Diaphragm Brake working outside its torque and heat dissipating range.	Check the application.

## PARTS REPLACEMENT

### FRICTION FACINGS

#### REFER TO FIGURE 4.

1. Remove two Jam Nuts (Item 12) and slide the Fixed Shoe (Item 1) off the Guide Rods (Item 21); then, remove the second two Jam Nuts (Item 12).



#### CAUTION

Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

2. Remove two Retaining Rings (Item 24), Washers (Item 23), and Guide Rod Springs (Item 22).
3. Remove the Set Screw (Item 13); then, slide the Sliding Shoe (Item 2) off the Guide Rods (Item 21).

#### NOTE

The Flat Head Machine Screws (Item 20) are assembled with an anaerobic locking compound. Inserting a properly fitting screwdriver into the head of the Flat Head Machine Screw and striking the end of the screwdriver with a hammer will break the crystalline structure of the locking compound and allow removal of the Flat Head Machine Screw. Never use an impact wrench to remove the Flat Head Machine Screws.

4. Remove the Flat Head Machine Screws (Item 20) from the Fixed Shoe (Item 1) and the Sliding Shoe (Item 2); then, remove the Friction Facings (Item 3) from the Fixed Shoe and Sliding Shoe.
5. Using new Flat Head Machine Screws (Item 20), secure the new Friction Facings (Item 3) to the Fixed Shoe (Item 1) and the Sliding Shoe (Item 2).
6. Tighten the Flat Head Machine Screws (Item 20) to 26 in-lbs [2.9 Nm] torque.
7. Slide the Sliding Shoe (Item 2) back onto the Guide Rods (Item 21).
8. Reinstall and tighten the Set Screw (Item 13) to 80 in-lbs [9.0 Nm] torque.

#### NOTE

Inspect the Guide Rod Springs (Item 22) for signs of fatigue or cracking. If the Guide Rod Springs show signs of fatigue or cracking they must be replaced.

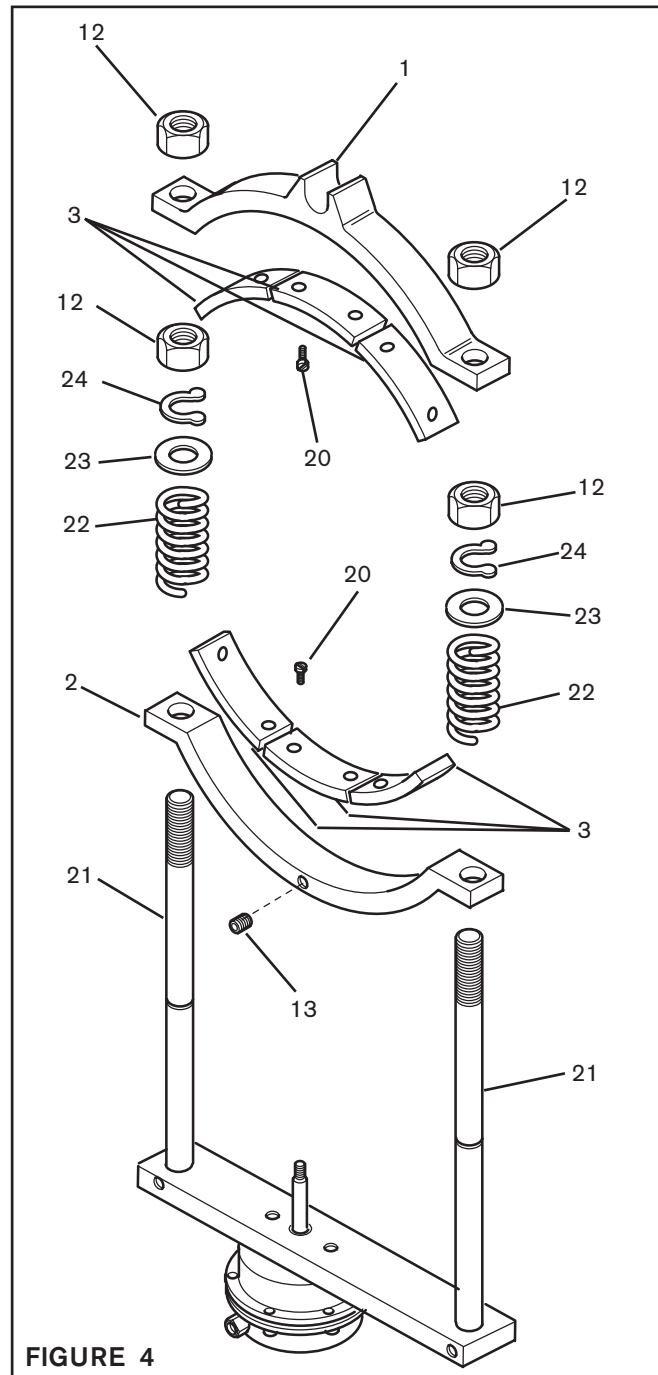


FIGURE 4

9. Reinstall the Guide Rod Springs (Item 22), Washers (Item 23), and Retaining Rings (Item 24) onto the Guide Rods (Item 21).
10. Install a Jam Nut (Item 12) onto each Guide Rod (Item 21); then, slide the Fixed Shoe (Item 1) onto the Guide Rods and install the remaining two Jam Nuts (Item 12) securing the Fixed Shoe to the Guide Rods.



## PARTS REPLACEMENT continued

### DIAPHRAGM AND PUSH PLATE SPRING

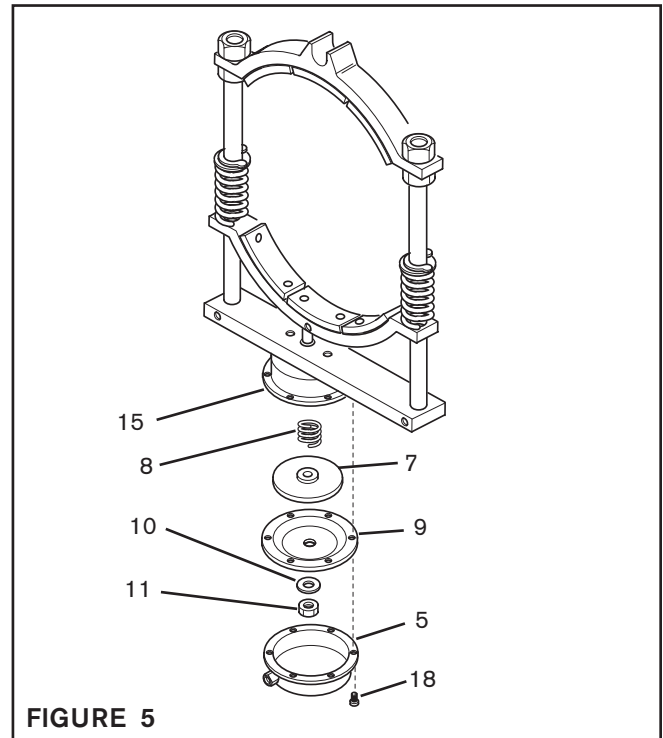
#### REFER TO FIGURE 5.

1. Remove the Socket Head Cap Screws (Item 18) securing the Top Housing (Item 15) to the Bottom Housing (Item 5).
2. Remove the Bottom Housing (Item 5); then, remove the Jam Nut (Item 11), Washer (Item 10), Diaphragm (Item 9), Push Plate (Item 7), and Push Plate Spring (Item 8).

#### NOTE

**Inspect the Push Plate Spring (Item 8) for signs of fatigue or cracking. If the Push Plate Spring shows signs of fatigue or cracking it must be replaced.**

3. Reinstall the Push Plate Spring (Item 8).
4. Reinstall the Push Plate (Item 7) and Diaphragm (Item 9).
5. Reinstall the Washer (Item 10) and Hex. Head Jam Nut (Item 11); then, seal the Hex. Head Jam Nut (Item 11) to the Push Rod (Item 6, using an anaerobic single-compound adhesive.
6. Using the Socket head Cap Screws (Item 18), secure the Bottom Housing (Item 5) to the Top Housing (Item 15); then, tighten them to 75 in-lbs [8.5 Nm] torque.



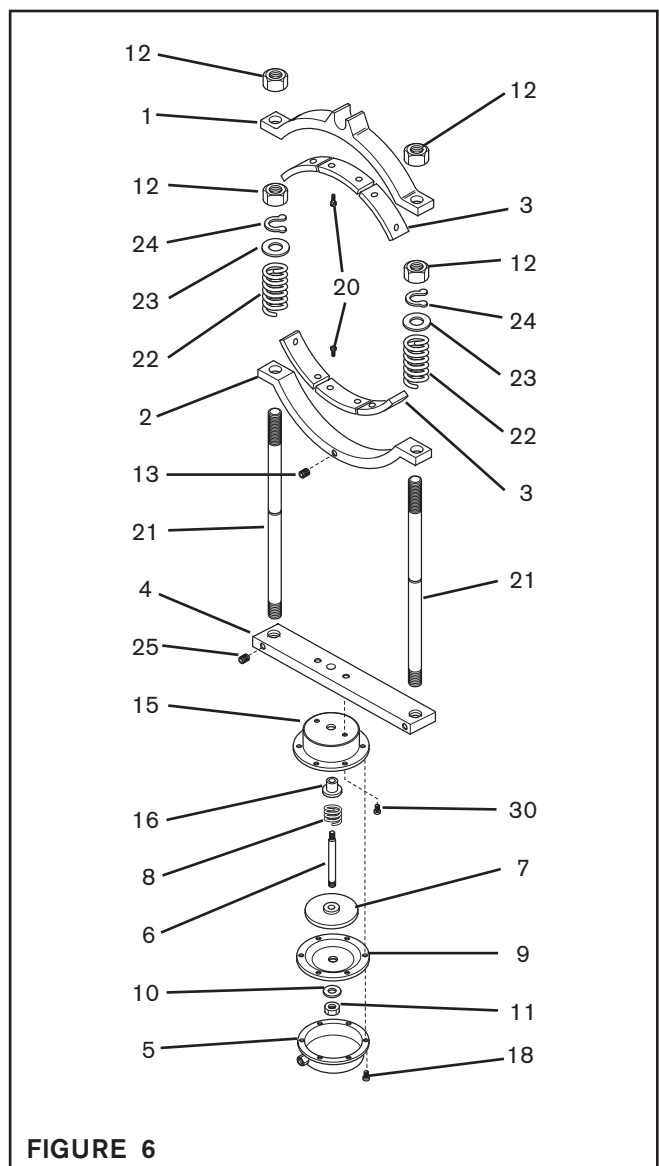
**FIGURE 5**

## REPLACEMENT PARTS LIST

The item or balloon number for all Nexen products is used for part identification on all product parts lists, product price lists, unit assembly drawings, bills of materials, and instruction manuals.

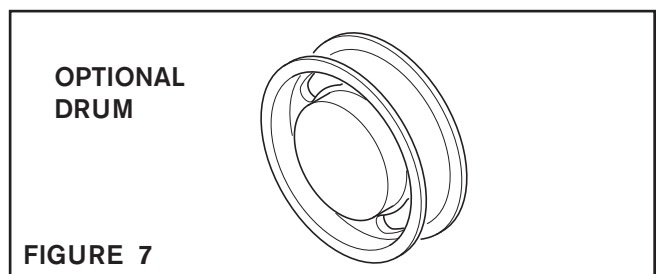
When ordering replacement parts, specify model designation, item number, part description, and quantity. Purchase replacement parts through your local Nexen Distributor.

ITEM	DESCRIPTION	QTY
1	Fixed Shoe	1
2	Sliding Shoe	1
3	Friction Facing (8K Brake)	4
3	Friction Facing (12 K Brake)	6
4	Base Bar	1
5	Bottom Housing	1
6	Push Rod	1
7	Push Plate	1
8	Push Plate Spring	1
9	Diaphragm	1
10	Washer	1
11	Jam Nut	1
12	Jam Nut	4
13	Set Screw	1
15	Top Housing	1
16	Bushing	1
18	Socket Head Cap Screw	6
20	Flat Head Machine Screw (8K Brake)	8
20	Flat Head Machine Screw (12K Brake)	12
21	Guide Rod	2
22	Guide Rod Spring	2
23	Washer	2
24	Retaining Ring	2
25	Set Screw	2
30	Socket Head Cap Screw	2



## ACCESSORIES

DESCRIPTION	PRODUCT NUMBER
8 inch [203.20 mm] Drum - no bore	845300
12 inch [304.80 mm] Drum - no bore	845600



## WARRANTY

### Warranties

Nexen warrants that the Products will (a) be free from any defects in material or workmanship for a period of 12 months from the date of shipment, and (b) will meet and perform in accordance with the specifications in any engineering drawing specifically for the Product that is in Nexen's current product catalogue, or that is accessible at the Nexen website, or that is attached to this Quotation and that specifically refers to this Quotation by its number, subject in all cases to any limitations and exclusions set out in the drawing. NEXEN MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND ALL IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE HEREBY DISCLAIMED. This warranty applies only if: (a) the Product has been installed, used and maintained in accordance with any applicable Nexen installation or maintenance manual for the Product; (b) the alleged defect is not attributable to normal wear and tear; (c) the Product has not been altered, misused or used for purposes other than those for which it was intended; and (d) Buyer has given written notice of the alleged defect to Nexen, and delivered the allegedly defective Product to Nexen, within one year of the date of shipment.

### Exclusive Remedy

The exclusive remedy for the Buyer for any breach of any warranties provided in connection with this agreement will be, at the election of Nexen: (a) repair or replacement with new, serviceably used, or reconditioned parts or products; or (b) issuance of credit in the amount of the purchase price paid to Nexen by the Buyer for the Products.

### Agent's Authority

Buyer agrees that no agent, employee or representative of Nexen has authority to bind Nexen to any affirmation, representation, or warranty concerning the Products other than those warranties expressly set forth herein.

### Limitation on Nexen's Liability

TO THE EXTENT PERMITTED BY LAW NEXEN SHALL HAVE NO LIABILITY TO BUYER OR ANY OTHER PERSON FOR INCIDENTAL DAMAGES, SPECIAL DAMAGES, CONSEQUENTIAL DAMAGES OR OTHER DAMAGES OF ANY KIND OR NATURE WHATSOEVER, WHETHER ARISING OUT OF BREACH OF WARRANTY OR OTHER BREACH OF CONTRACT, NEGLIGENCE OR OTHER TORT, OR OTHERWISE, EVEN IF NEXEN SHALL HAVE BEEN ADVISED OF THE POSSIBILITY OR LIKELIHOOD OF SUCH POTENTIAL LOSS OR DAMAGE. For all of the purposes hereof, the term "consequential damages" shall include lost profits, penalties, delay damages, liquidated damages or other damages and liabilities which Buyer shall be obligated to pay or which Buyer may incur based upon, related to or arising out of its contracts with its customers or other third parties. In no event shall Nexen be liable for any amount of damages in excess of amounts paid by Buyer for Products or services as to which a breach of contract has been determined to exist. The parties expressly agree that the price for the Products and the services was determined in consideration of the limitation on damages set forth herein and such limitation has been specifically bargained for and constitutes an agreed allocation of risk which shall survive the determination of any court of competent jurisdiction that any remedy herein fails of its essential purpose.

### Inspection

Buyer shall inspect all shipments of Products upon arrival and shall notify Nexen in writing, of any shortages or other failures to conform to these terms and conditions which are reasonably discoverable upon arrival without opening any carton or box in which the Products are contained. Such notice shall be sent within 14 days following arrival. All notifications shall be accompanied by packing slips, inspection reports and other documents necessary to support Buyer's claims. In addition to the foregoing obligations, in the event that Buyer receives Products that Buyer did not order, Buyer shall return the erroneously shipped Products to Nexen within thirty (30) days of the date of the invoice for such Products; Nexen will pay reasonable freight charges for the timely return of the erroneously shipped Products, and issue a credit to Buyer for the returned Products at the price Buyer paid for them, including any shipping expenses that Nexen charged Buyer. All shortages, overages and nonconformities not reported to Nexen as required by this section will be deemed waived.

### Limitation on Actions

No action, regardless of form, arising out of any transaction to which these terms and conditions are applicable may be brought by the Buyer more than one year after the cause of action has accrued.

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