

Diaphragm Brake




4", 8" and 12" Hinge Top Diaphragm Brake



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"> DANGER</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 ONLY. 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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ISO 9001 Certified

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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	Brake: Up to 13.2 kg (29 lbs) Drum: 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."



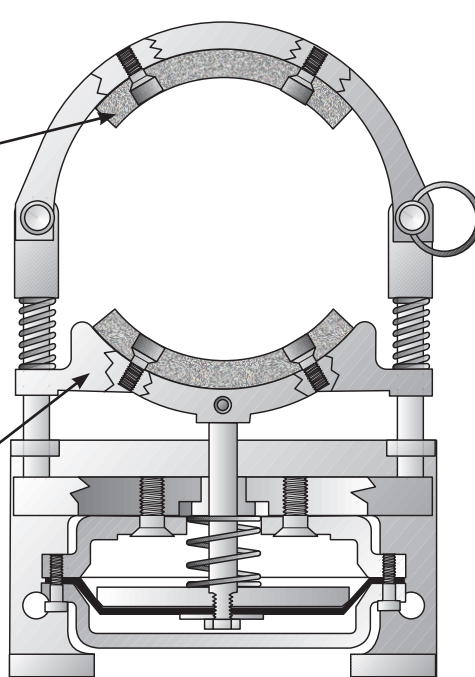
CAUTION


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. Pull the Detent Pin (Item 29) and lift the hinged Fixed Shoe (Item 1) to the open position.

NOTE

For maximum wear of hinged Fixed Shoe Friction Facing (Item 3), the Self Centering Bracket (Item 14) should be touching the Base Bar (Item 4) when mounting the Diaphragm Brake.

NOTE

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

5. Position the Diaphragm Brake on the optional Drum with the Fixed Shoe (Item 1) riding on the Drum and the Self Centering Bracket (Item 14) mounted as low as possible.
6. Secure the Self Centering Bracket (Item 14).

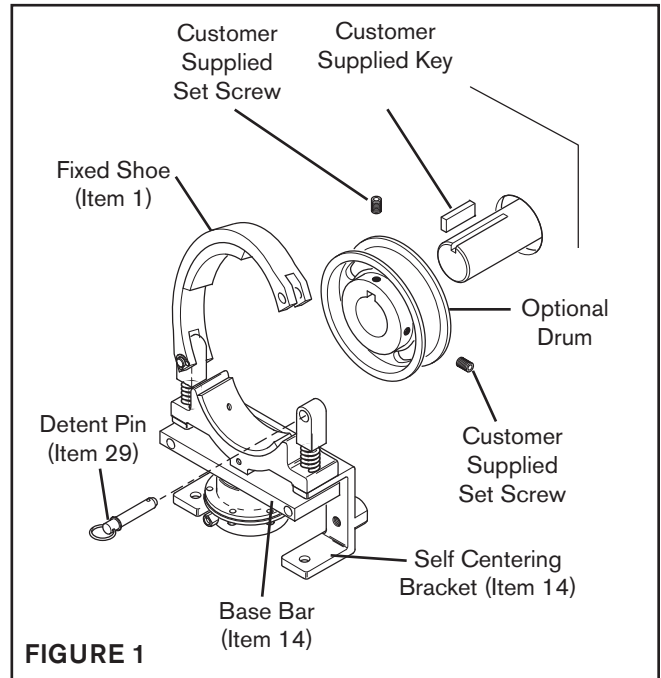


FIGURE 1

BRAKE WITHOUT OPTIONAL DRUM

REFER TO FIGURE 2.

1. Pull the Detent Pin (Item 29) and lift the hinged Fixed Shoe (Item 1) to the open position.

NOTE

For maximum wear of hinged Fixed Shoe Friction Facing (Item 3), the Self Centering Bracket (Item 14) should be touching the Base Bar (Item 4) when mounting the Diaphragm Brake.

NOTE

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

2. Position the Brake on the shaft with the Fixed Shoe (Item 1) riding on the shaft and the Self Centering Bracket (Item 14) mounted as low as possible.
3. Secure the Self Centering Bracket (Item 14).

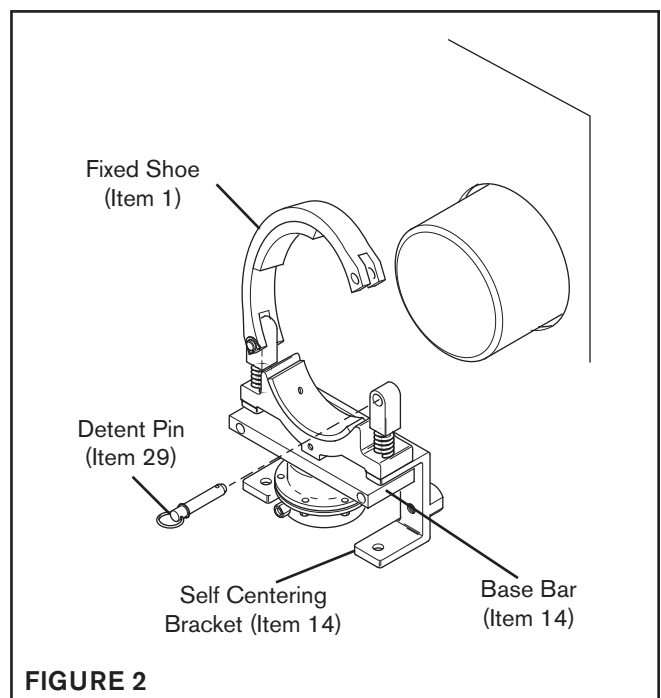


FIGURE 2

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

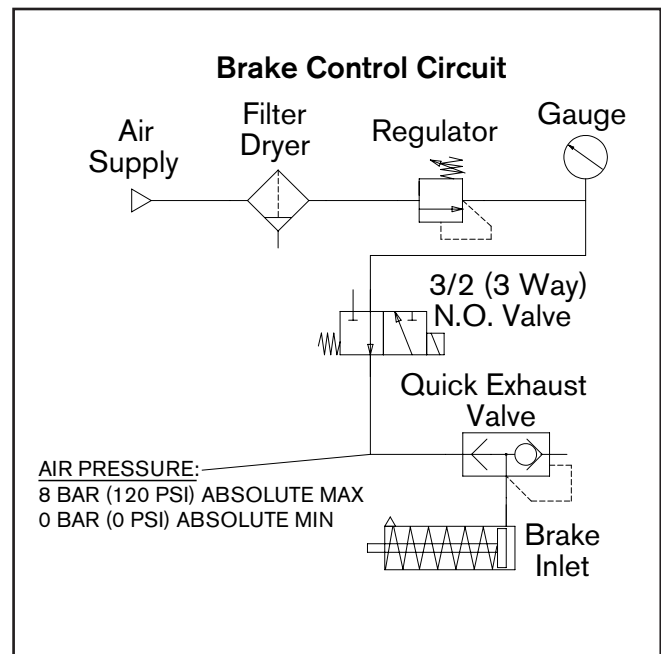
For quick response, Nexen recommends a quick exhaust valve and short air lines between the Control Valves and the unit. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.




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
4K HT Brake	5500
8K HT Brake	2700
12K HT Brake	1800

TROUBLESHOOTING

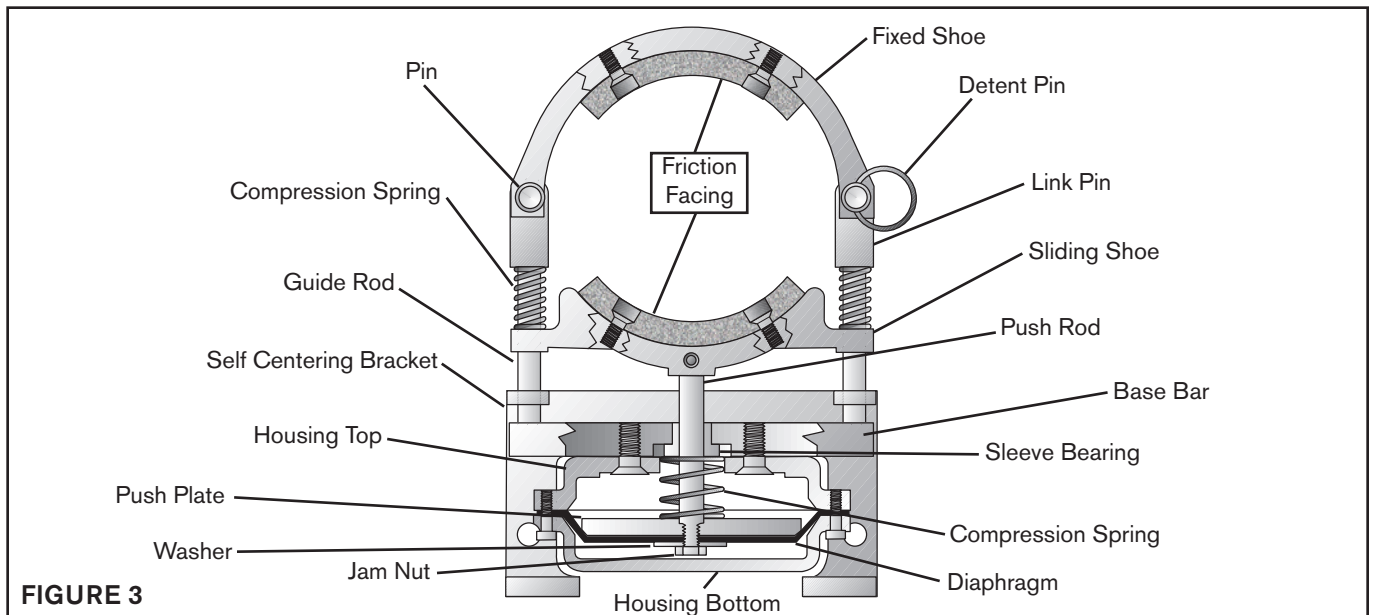


FIGURE 3

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.
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.
	Diaphragm Brake working outside its torque and heat dissipating range.	Check the application.

PARTS REPLACEMENT

FRICTION FACINGS (ALL MODELS)

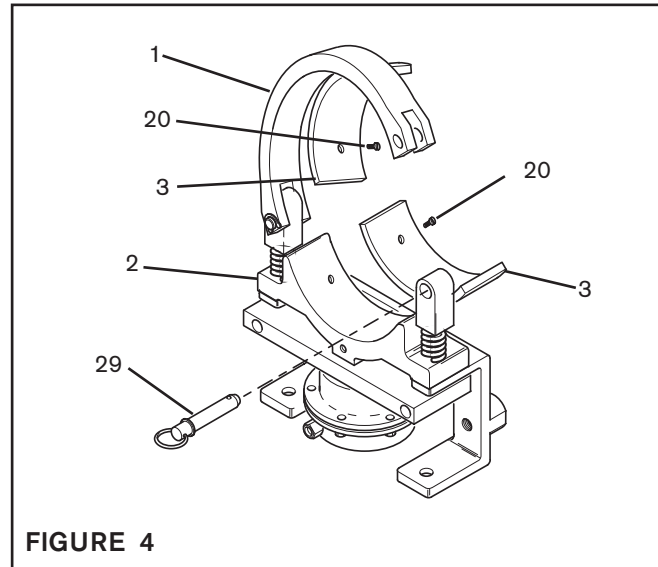
REFER TO FIGURE 4.

1. Pull the Detent Pin (Item 29) and lift the hinged Fixed Shoe (Item 1) to the open position.

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.

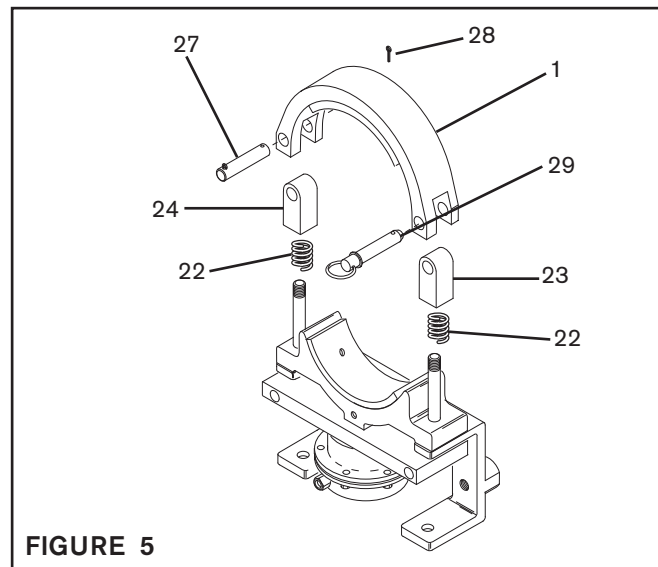
2. Remove Flat Head Machine Screws (Item 20) from the hinged Fixed Shoe (Item 1) and the Sliding Shoe (Item 2); then, remove the Friction Facings (Item 3) from the hinged Fixed Shoe and Sliding Shoe.
3. Using new Flat Head Machine Screws (Item 20), secure the new Friction Facings (Item 3) to hinged Fixed Shoe (Item 1) and Sliding Shoe (Item 2).
4. Tighten the Flat Head Machine Screws (Item 20) to 26 in-lbs [2.9 Nm] torque.



COMPRESSION SPRINGS (8K & 12K MODELS)

REFER TO FIGURE 5.

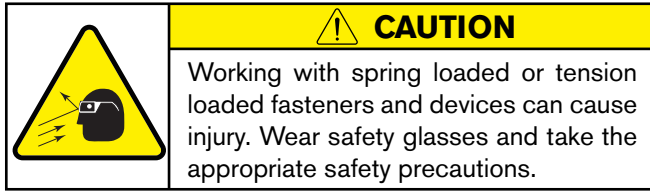
1. Pull the Detent Pin (Item 29) (See Figure 5).
2. Remove one Cotter Key (Item 28); then, remove the Pin (Item 27).
3. Lift the hinged Fixed Shoe (Item 1) off the Link Pins (Items 23 and 24); then remove the Link Pins.
4. Remove the old Compression Springs (Item 22) and install the new Compression Springs.
5. Reinstall the Link Pins (Items 23 and 24) and position the hinged Fixed Shoe (Item 1) in place on the Link Pins.
6. Slide the Pin (Item 27) through the hinged Fixed Shoe (Item 1) and one Link Pin (Item 24); then, reinstall the Cotter Key (Item 28) removed in Step 2.
7. Close the hinged Fixed Shoe (Item 1) and install the Detent Pin (Item 29).



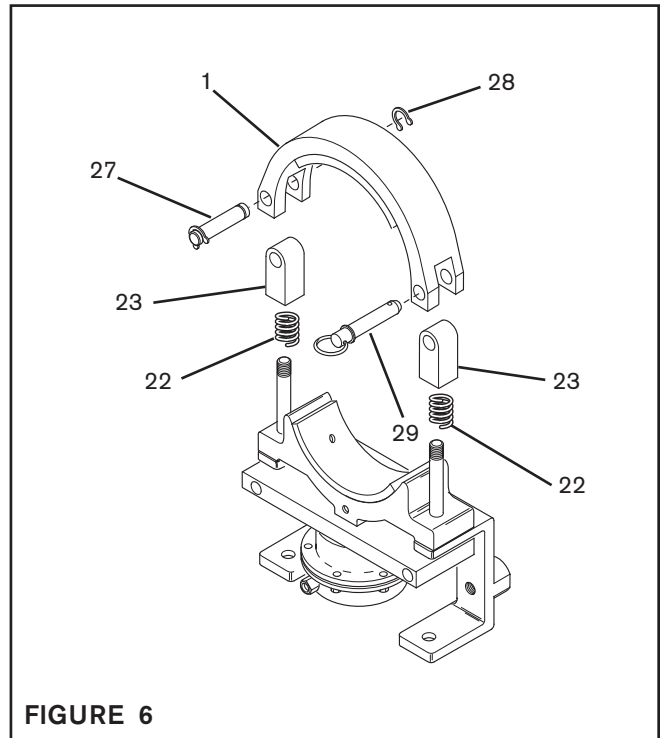
COMPRESSION SPRINGS (4K BRAKE)

REFER TO FIGURE 6.

1. Pull the Detent Pin (Item 29).



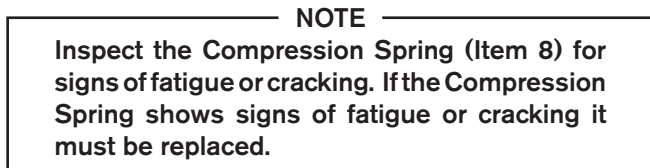
2. Remove one Retaining Ring (Item 28); then, remove the Pin (Item 27).
3. Lift the hinged Fixed Shoe (Item 1) off the Link Pins (Item 23); then remove the Link Pins.
4. Remove the old Compression Springs (Item 22) and install the new Compression Springs.
5. Reinstall the Link Pins (Item 23) and position the hinged Fixed Shoe (Item 1) in place on the Link Pins.
6. Slide the Pin (Item 27) through the hinged Fixed Shoe (Item 1) and one Link Pin (Item 23); then, reinstall Retaining Ring (Item 28) removed in Step 2.
7. Close the hinged Fixed Shoe (Item 1) and install the Detent Pin (Item 29).



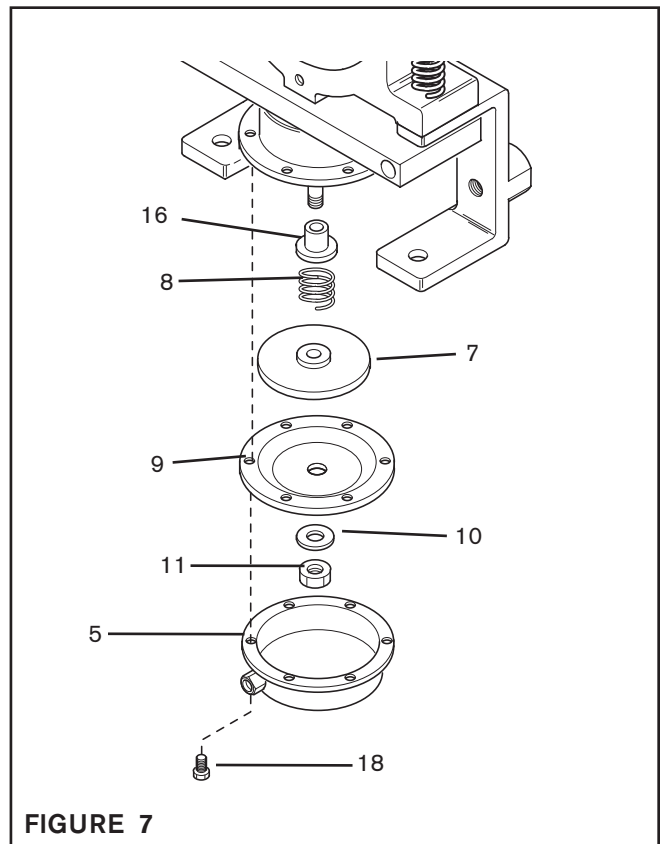
DIAPHRAGM & COMPRESSION SPRING (ALL MODELS)

REFER TO FIGURE 7.

1. Remove the Socket Head Cap Screws (Item 18) and Hex. Nuts (Item 19) securing the Top Housing (Item 15) to the Bottom Housing (Item 5).
2. Remove the Bottom Housing (Item 5); then, remove the Hex. Head Jam Nut (Item 11), Washer (Item 10), Diaphragm (Item 9), Push Plate (Item 7), and Compression Spring (Item 8).



3. Reinstall the Compression Spring (Item 8).
4. Reinstall Push Plate (Item 7) & 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.



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.

8K & 12K BRAKES

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	Housing Assembly (bottom)	1
6	Push Rod	1
7	Push Plate	1
8	Compression Spring	1
9	Diaphragm	1
10	Flat Washer	1
11	Hex Head Jam Nut	1
13	Set Screw	1
14	Self Centering Bracket	1
15	Housing (top)	1
16	Sleeve Bearing	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	Compression Spring	2
23	Link Pin	1
24	Link Pin	1
26	Hex. Head Bolt	2
27	Pin	1
28	Cotter Pin	2
29	Detent Pin	1
30	Flat Head Screw	2

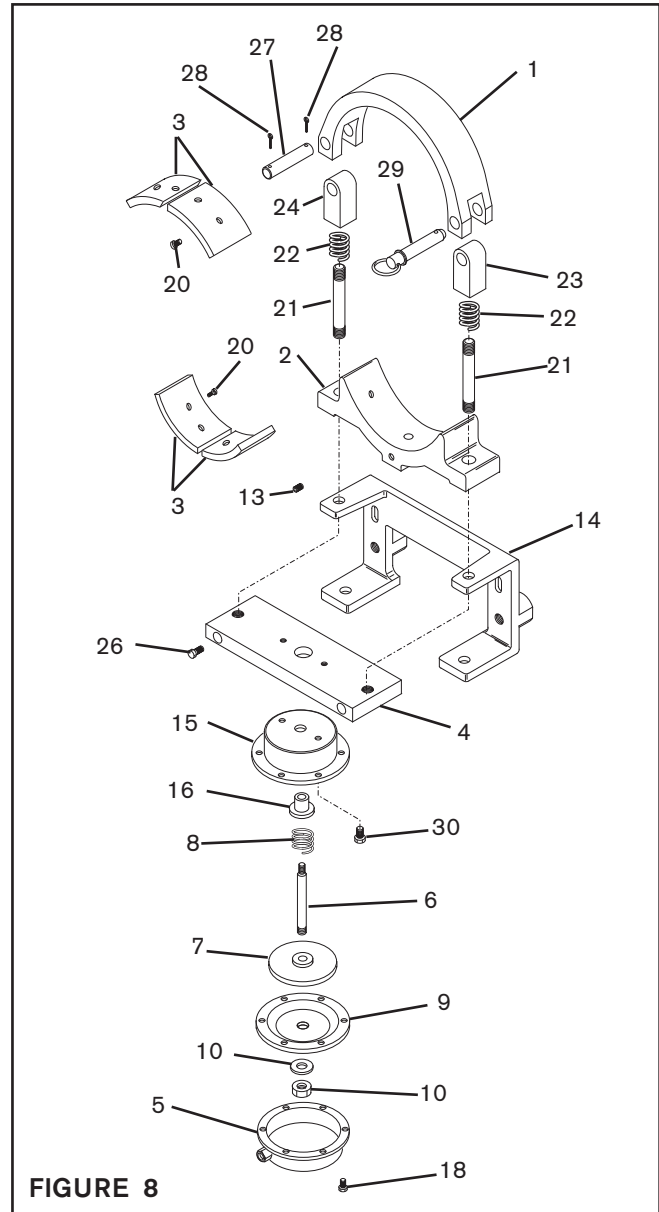


FIGURE 8

4K BRAKE

ITEM	DESCRIPTION	QTY
1	Fixed Shoe	1
2	Sliding Shoe	1
3	Friction Facing (4K Brake)	2
4	Base Bar	1
5	Housing Assembly (bottom)	1
6	Push Rod	1
7	Push Plate	1
8	Compression Spring	1
9	Diaphragm	1
10	Flat Washer	1
11	Hex Head Jam Nut	1
13	Set Screw	1
14	Self Centering Bracket	1
15	Housing (top)	1
16	Sleeve Bearing	1
18	Socket Head Cap Screw	6
20	Flat Head Machine Screw (4K Brake)	4
21	Guide Rod	2
22	Compression Spring	2
23	Link Pin	2
26	Hex. Head Bolt	2
27	Pin	1
28	Retaining Ring	2
29	Detent Pin	1
30	Flat Head Screw	2

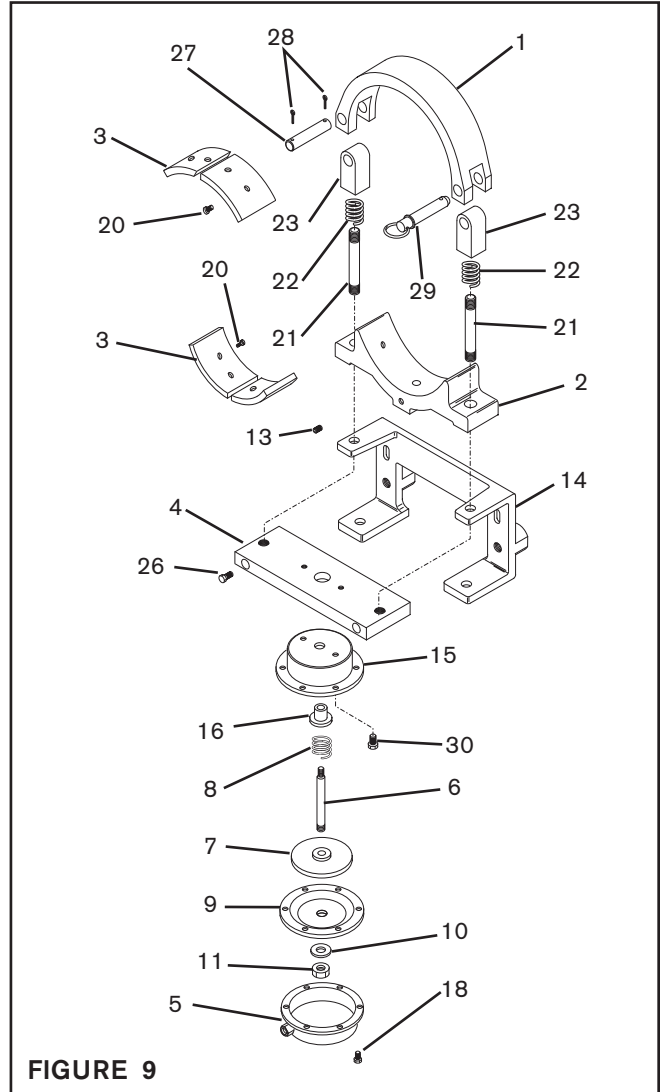


FIGURE 9

ACCESSORIES

DESCRIPTION	BORE	PRODUCT NUMBER
4 inch [101.6 mm] Drum	no bore	843600
4 inch [101.6 mm] Drum	1 inch [25.4 mm]	844000
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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