

**nexen**®

# AIR CHAMP® PRODUCTS

User Manual



## Conveyor Clutch Model 5H20P






FORM NO. L-20210-C-0814

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="545 558 841 611"> <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 170 Nm (1500 in-lbs)
Actuation Pressure	1 - 5.5 bar (14.5 - 80 psi)
Service Temperature	4.5 - 104 C (40 - 220 F)
Approximate Weight	Up to 3.4 kg (7.5 lbs)

## GENERAL SAFETY PRECAUTIONS




**CAUTION**

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




**CAUTION**

Use lifting aids and proper lifting techniques when installing, removing or placing this product in service.




**CAUTION**

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




**WARNING**

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




**CAUTION**

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



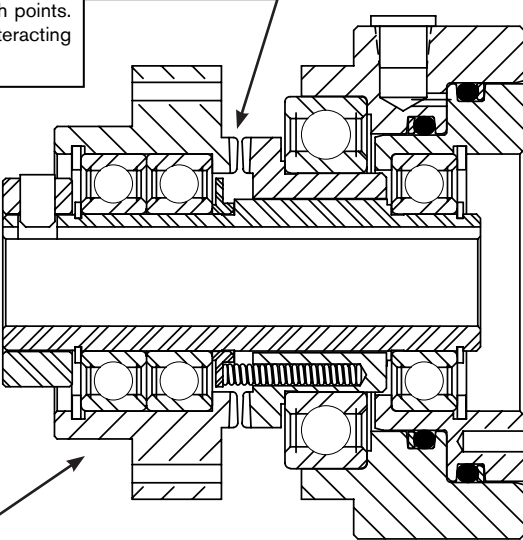
**WARNING**


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**

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

## INTRODUCTION

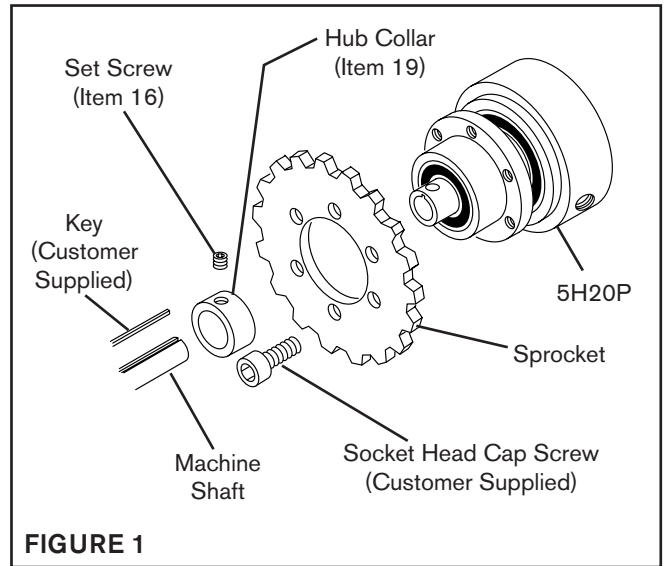
Nexen's Model 5H20P Conveyor Clutches are built specifically to meet the needs of a wide range of conveyor applications.

The Model 5H20P Conveyor Clutch operates on static air pressure. Torque is adjusted by simply varying the air pressure; while the Tooth Clutch design provides long life without premature wear and slip as encountered with wrap spring devices.

## INSTALLATION

### REFER TO FIGURE 1.

1. Using customer supplied 10-24 UNC 2B Socket Head Cap Screws, secure sprocket or drive component to Clutch.
2. Tighten the Socket Head Cap Screws to 23 ft-lbs [31 Nm] torque.
3. Slide Hub Collar (Item 19) onto Hub of Clutch, and align hole in Hub Collar with hole in Hub of Clutch.
4. Install customer supplied Key into shaft keyway.
5. Slide the Conveyor Clutch onto shaft.
6. Install and tighten Set Screw (Item 16) to 6 ft-lbs [8.5 Nm] torque.



## 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.

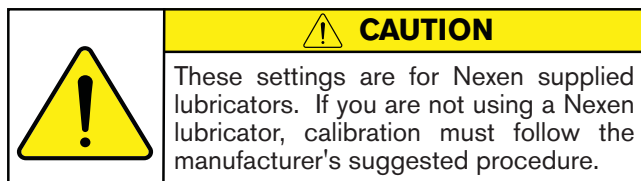
However, some customers prefer to use an air line lubricator, which injects oil into the pressurized air, forcing an oil mist into the air chamber. This is acceptable, but care must be taken to ensure once an air mist lubrication system is used, it is continually used over the life of the product as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

Nexen product's bearings are shielded and pre-lubricated, and require no further lubrication.

## LUBRICATOR DRIP RATE SETTINGS



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.

## HUB SPLINE

Although the Hub Spline has been lubricated at the factory with a high temperature lubricant such as "NEVER-SEEZ<sup>®</sup>" or equivalent anti-seize lubricating compound. Nexen recommends periodic lubrication of this component to insure smooth clutch engagement and disengagement.

### NOTE

**Clutch must be disassembled in order to lubricate Hub Spline (See PARTS REPLACEMENT section for disassembly instructions).**

## FACE TEETH

Lubricate Drive Ring and Drive Flange face teeth with "NEVER-SEEZ<sup>®</sup>" or equivalent whenever visual inspection shows a need for lubrication.

## AIR CONNECTIONS

All Nexen pneumatically actuated devices require clean and dry air, which meets or exceeds ISO 8573.1:2001 Class 4.4.3 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.**

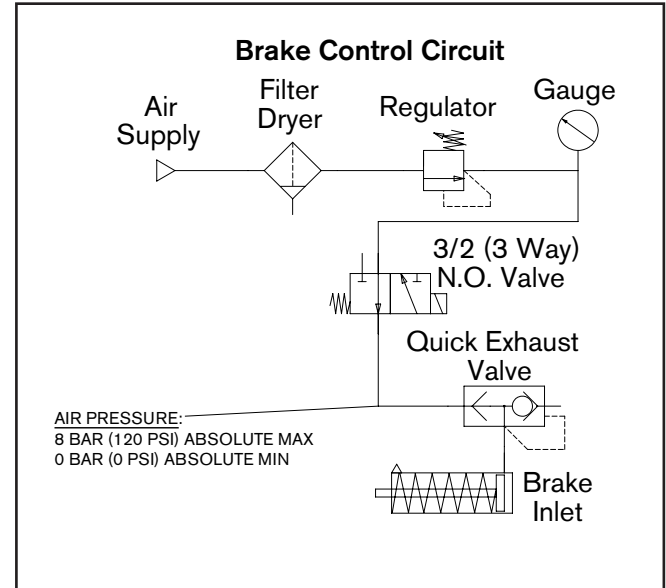
Although 5H tooth clutches are air actuated with a maximum operating pressure of 80 psi [5.52 bar], use only enough air pressure to deliver ample torque for the application. Operating pressures in excess of 80 psi [5.52 bar] will eventually cause accelerated bearing and O-ring seal damage.

### NOTE


**Use flexible hose or tubing only. Rigid pipe or tubing when connected directly to the Conveyor Clutch will prevent proper actuation due to the necessary movement of the air chamber and hose upon engagement.**

Due to bearing seal drag, the outer portion of the Conveyor Clutch will rotate causing hose breakage when the Conveyor Clutch is engaged. Resting the air line against a support that is mounted parallel to the Conveyor Clutch center line stops this rotation.

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




**CAUTION**

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



**WARNING**

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



**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."

TABLE 1

Size	Max RPM
5H20P	4000

## TROUBLESHOOTING

SYMPTOM	PROBABLE CAUSE	SOLUTION
Failure to engage	Control Valve malfunction or low air pressure	Check system for air leaks or replace Control Valve.
	Lack of lubrication on the Hub Spline or in the Air Chamber	Lubricate the Hub Spline and check Air Chamber lubrication.
	Using rigid pipe or tubing for air line connections	Use flexible pipe or tubing for all air line connections.
Failure to disengage	Lack of lubrication on the Hub Spline or in the Air Chamber	Lubricate the Hub Spline and check Air Chamber lubrication.
	Broken Return Springs	Replace Return Springs.
	Unexhausted air due to a control valve malfunction	Replace Control Valve.
Tooth wear or clicking sound	Excessive engagement RPM or unintentional disengagement due to torque overload	Contact Nexen for Clutch Specifications.
Bearing Failure	Limit air pressure to 80 psi. Excessive air pressure increases the thrust load on the Bearings.	
	Stay within the maximum specified speed limits as specified in the "Air Champ" Catalog.	

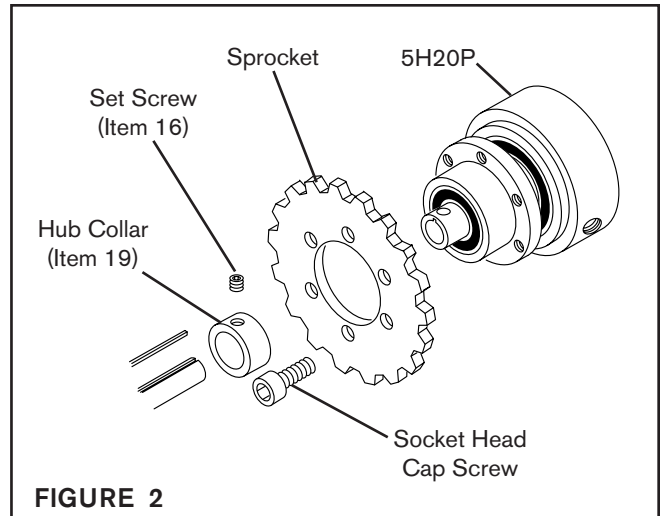


## PARTS REPLACEMENT

### CLUTCH REMOVAL

#### REFER TO FIGURE 2.

1. Shut off air supply to Clutch and remove Air Line from Clutch.
2. Disengage Clutch from machine by removing chain from sprocket.
3. Remove Set Screw (Item 16).
4. Slide Clutch and Hub Collar (Item 19) off shaft of machine.
5. Remove Set Collar (Item 16).
6. Remove Socket Head Cap Screws securing Sprocket to Clutch.
7. Remove Sprocket from Clutch.



### BEARING REPLACEMENT (DRIVE FLANGE)

#### REFER TO FIGURES 3 & 4.



#### CAUTION

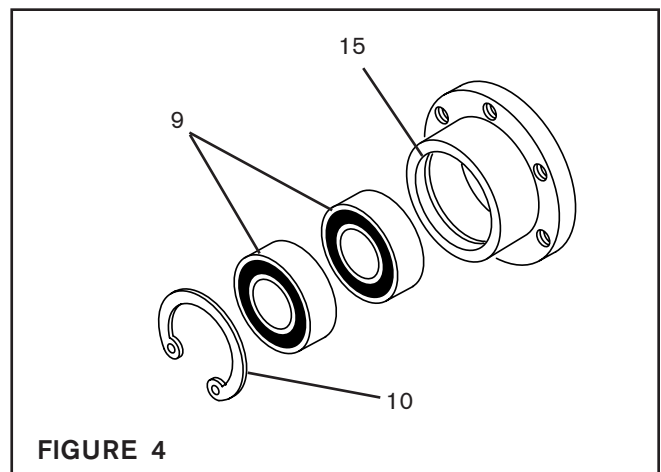
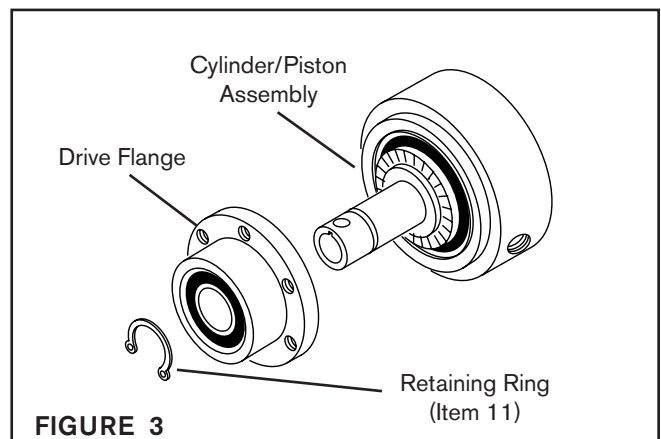
Working with spring loaded or tension loaded fasteners and devices can cause injury. Wear safety glasses and take the appropriate safety precautions.

1. Remove Retaining Ring (Item 11).
2. Fully supporting Drive Flange; press Hub, and Cylinder/Piston Assembly out of Drive Flange.
3. Remove Retaining Ring (Item 10).
4. Fully supporting Drive Flange (Item 15); press Bearings (Item 9) out of Drive Flange.
5. Clean bore of Drive Flange with fresh safety solvent.
6. Apply Loctite® 601 to O.D. of new Bearings, then press new Bearings into Drive Flange.

#### NOTE

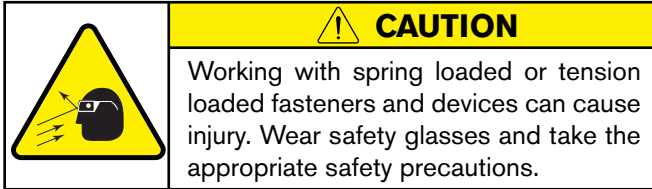
**When installing new Bearings, carefully align Bearing O.D. with Drive Flange Bore to prevent Bearings misalignment.**

7. Install Retaining Ring (Item 10).



## BEARING REPLACEMENT (CYLINDER/PISTON ASSEMBLY)

REFER TO FIGURES 5-8.

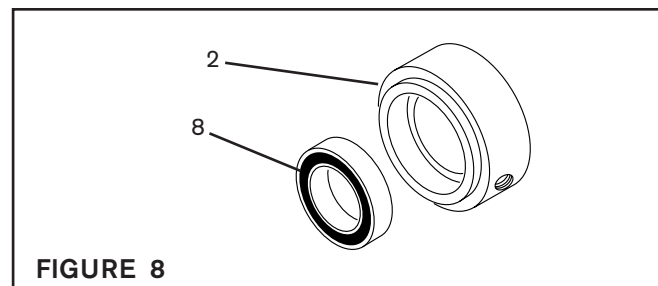
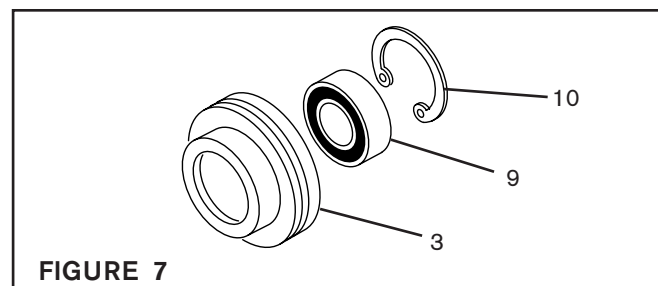
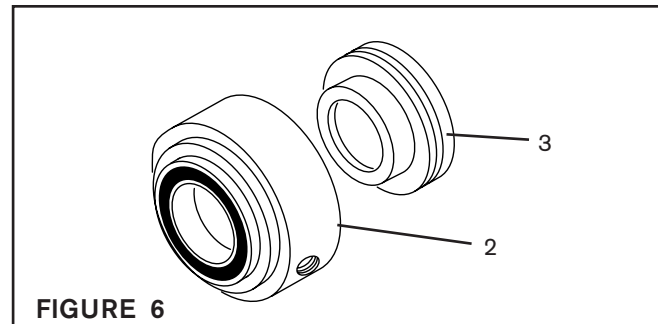
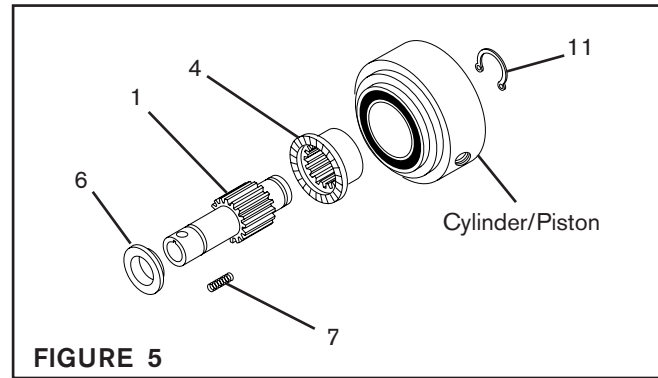


1. Remove Retaining Ring (Item 11).
2. Slide Hub (Item 1) out of Piston/Cylinder Assembly.
3. Slide Backing Plate (Item 6) off Hub (Item 1).
4. Remove Compression Springs (Item 7) from Drive Ring (Item 4).
5. Slide Drive Ring (Item 4) out of Cylinder/Piston Assembly.
6. Separate Piston (Item 3) from Cylinder (Item 2).
7. Remove Retaining Ring (Item 10) from the Piston (Item 3).
8. Press Bearing (Item 9) out of Piston (Item 3).
9. Clean bore of Piston with fresh safety solvent.
10. Apply Loctite® 601 to O.D. of new Bearing, then press new Bearing into Piston.

### NOTE

**When installing new Bearings, carefully align Bearing O.D. with Piston bore to prevent Bearing misalignment.**

11. Press Bearing (Item 8) out of Cylinder (Item 2).
12. Clean bore of Cylinder with fresh safety solvent.
13. Apply Loctite® 601 to O.D. of new Bearing, then press new Bearing into Cylinder.



## O-RING & BACK-UP RING REPLACEMENT

REFER TO FIGURES 9 & 10.

1. Separate Cylinder (Item 2) and Piston (Item 3).
2. Remove O-rings (Items 12 & 13) and Back-up Rings (Items 23 & 25) from Cylinder and Piston.
3. Clean o-ring grooves of Cylinder and Piston; then lubricate new o-rings and o-ring grooves of Piston and Cylinder with fresh o-ring lubricant.
4. Install new O-rings (Items 12 & 13) and Back-up Rings (Items 23 & 25).

### NOTE

**When installing new O-rings and Back-up Rings, make sure curved surface of Back-up Ring matches surface of O-ring. Back-up Rings must be installed on the non-pressurized side of the O-rings.**

5. Carefully slide Piston (Item 3) into Cylinder (Item 2) to avoid damaging seals.

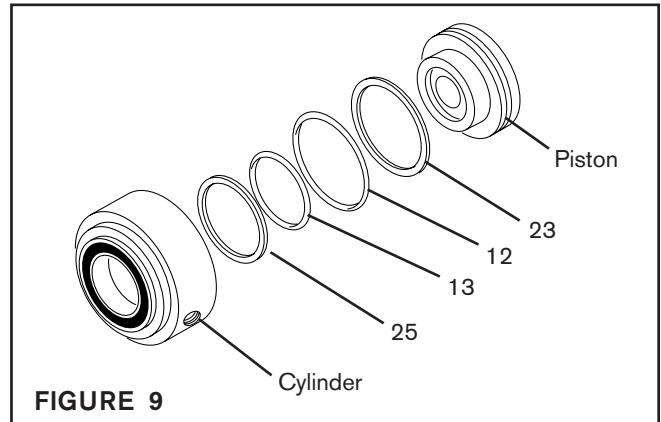


FIGURE 9

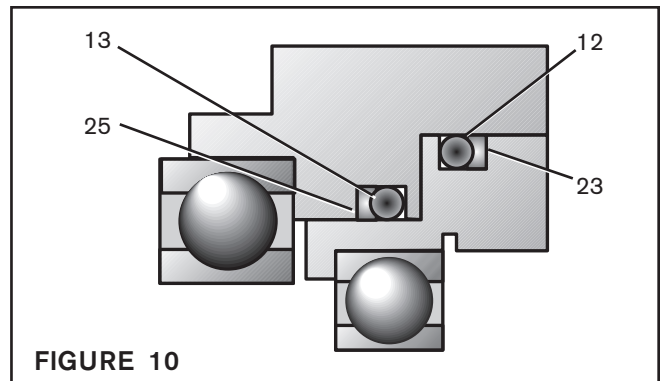


FIGURE 10

## 5H20P REASSEMBLY

REFER TO FIGURES 11 & 12.

1. Slide Drive Ring (Item 4) into Cylinder/Piston Assembly.
2. Lubricate splines of Hub (Item 1) with NEVER SEEZ®.



### CAUTION

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

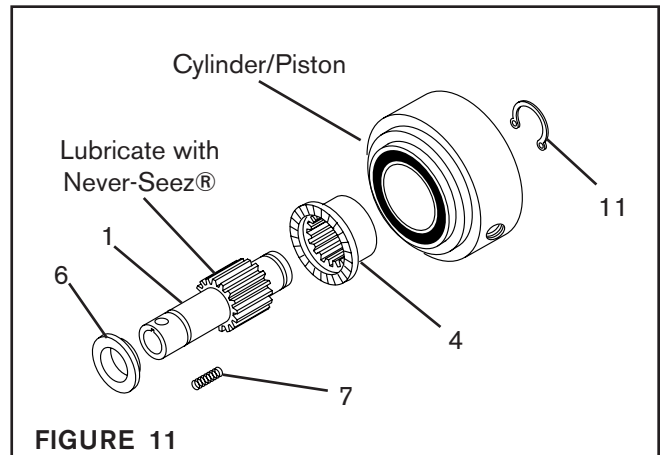


FIGURE 11

3. Slide Hub (Item 1) into Drive Ring (Item 4), and replace Retaining Ring (Item 11).
4. Install Compression Springs (Item 7) into respective holes of Drive Ring (Item 4).
5. Slide Backing Plate (Item 6) onto Hub (Item 1).
6. Slide Drive Flange Assembly onto Hub (Item 1) and Cylinder/Piston Assembly.
7. Replace Retaining Ring (Item 11).

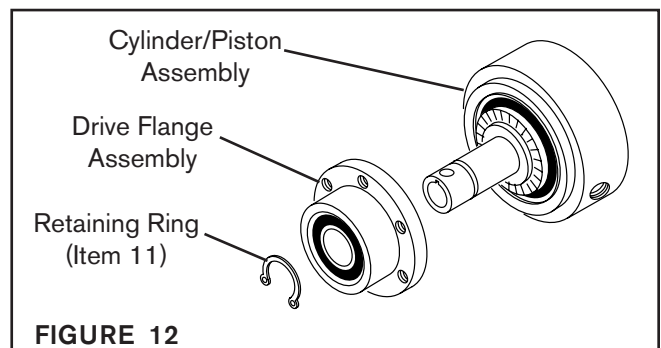
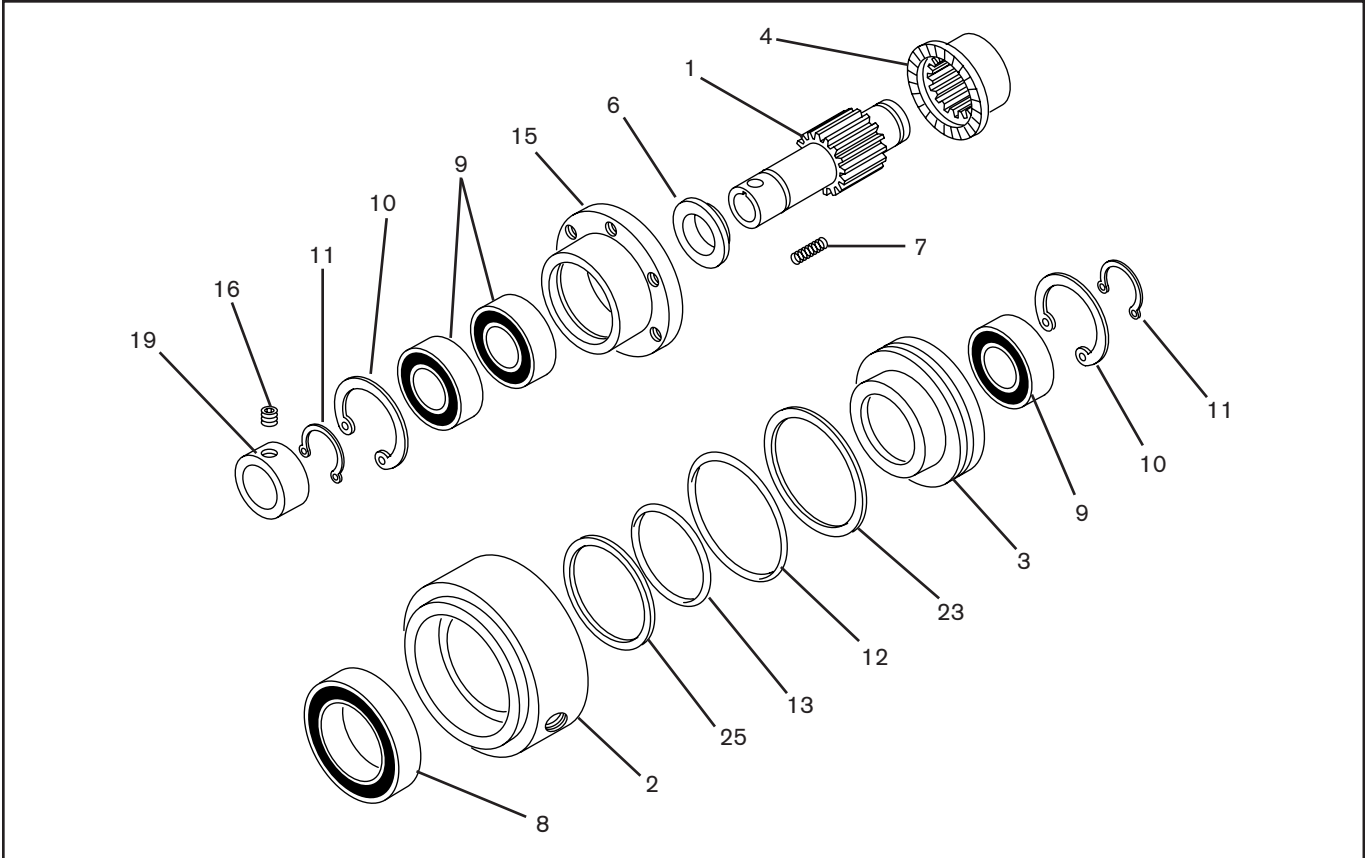


FIGURE 12

## REPLACEMENT PARTS

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	Hub	1
2	Cylinder	1
3	Piston	1
4	Drive Ring	1
6	Backing Plate	1
7	Compression Spring	3
8 <sup>1</sup>	Ball Bearing	1
9 <sup>1</sup>	Ball Bearing	3
10	Retaining Ring (Int.)	2

ITEM	DESCRIPTION	QTY
11	Retaining Ring (Ext.)	2
12 <sup>1</sup>	O-Ring Seal (Large)	1
13 <sup>1</sup>	O-Ring Seal (Small)	1
14	A/C Hose (8.25" long) (not shown)	1
15	Drive Flange	1
16	Set Screw	2
19	Hub Collar	1
23 <sup>1</sup>	Back-up Ring (Large)	2
25 <sup>1</sup>	Back-up ring (Small)	1

<sup>1</sup> Denotes Repair Kit Item (Repair Kit No. 911309).

## 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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