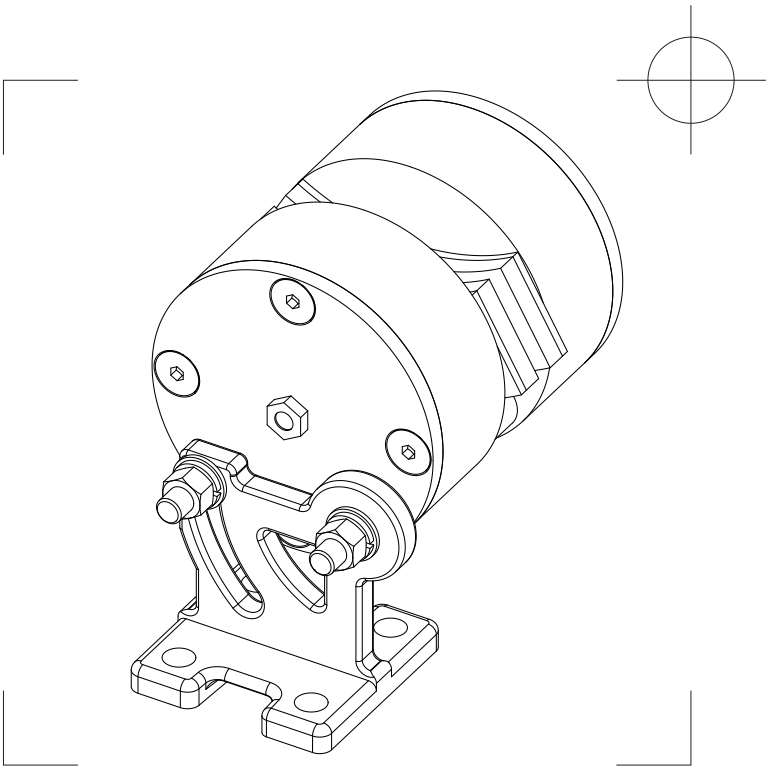
nexen®

AIR CHAMP® PRODUCTS

User Manual



Disc Caliper Brake
Model DBSE

RoHS compliant

FORM NO. L-20017-D-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.

Technical Support: 800-843-7445
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www.nexengroup.com

DANGER

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.

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.

Nexen Group, Inc.
560 Oak Grove Parkway
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ISO 9001 Certified

Table of Contents

GENERAL SPECIFICATIONS

Specifications	
Torque:	Up to 1200 in-lbs
Disengagement Pressure:	40 psi minimum
Service Temperature:	4.5-104C (40-220F)
Approximate Weight:	Up to 20 lbs.

GENERAL SAFETY PRECAUTIONS

⚠ CAUTION

The temperature limits for the product are 4.5-104 degree Celsius (40-220 degree F).

⚠ CAUTION

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

⚠ WARNING

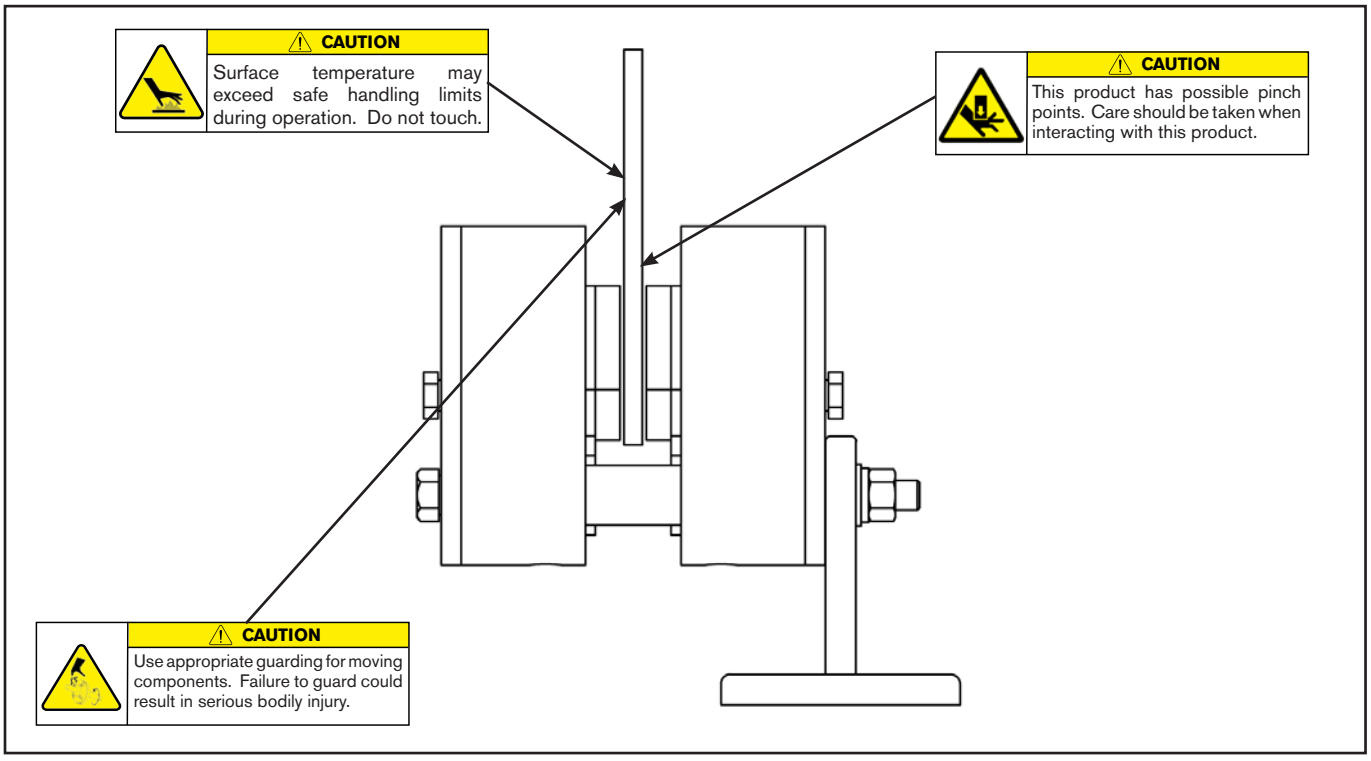
This product is capable of emitting a spark if misused therefore is not recommended for use in any explosive environment.

⚠ CAUTION

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

⚠ 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”.



NOTE

The Brake Disc (ordered separately) may be mounted to a customer supplied hub or mounted to the Nexen Disc Brake Hub (also ordered separately) for use with a Q.D. Bushing.

Refer to Figure 1-2 & Table 1.

1. Apply a drop of Loctite® 242 to the threads of the six Flat Head Hex Socket Cap Screws provided with the Brake Disc and secure the Brake Disc to the Brake Disc Hub or to a customer-supplied hub.

2. Alternately and evenly tighten the six Flat Head Hex Socket Cap Screws to the recommended torque.

3. Thoroughly inspect the tapered bore of the Brake Disc Hub and the tapered surface of the Q. D. Bushing. Remove any dirt, grease, or foreign material. Do not use lubricants for this installation.

4. Assemble the Q.D. Busing into the Brake Disc Hub, aligning the untapped holes in the Q.D. bushing with the tapped holes in the Brake Disc Hub.

NOTE

Runout is minimized if a Dial Indicator is used as the pull-up bolts are tightened. Place the contact tip of the Dial Indicator on the machined surface of the Brake Disc to measure runout. Runout should be less than 0.010-0.015 in. [.254-.381 mm.].

⚠ CAUTION

If excessive tightening torque is applied, bursting pressures are created in the Brake Hub. There must be a gap between the flange of the Q. D. Bushing and the Brake Disc to ensure a proper fit of the Q. D. Bushing onto the shaft.

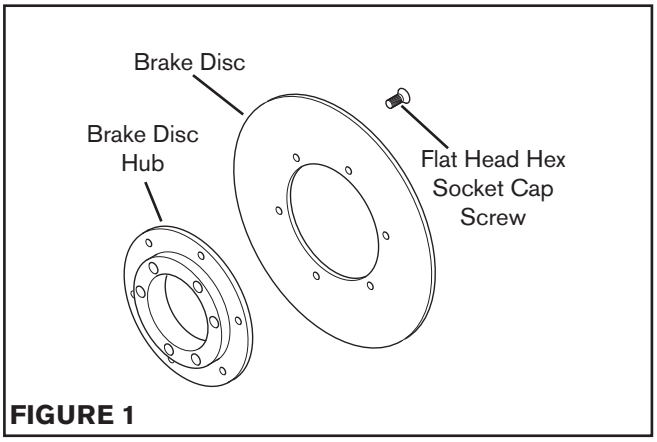


FIGURE 1

TABLE 1

RECOMMENDED TIGHTENING TORQUES FLAT HEAD HEX SOCKET CAP SCREWS	
MODEL	**TORQUE**
10 in. Disc (Prod. No. 855500)	45 in-lb (5.04 Nm)
12 in. Disc (Prod. No. 855600)	105 in-lb (11.76 Nm)
14 in. Disc (Prod. No. 855700)	105 in-lb (11.76 Nm)
16 in. Disc (Prod. No. 855800)	105 in-lb (11.76 Nm)

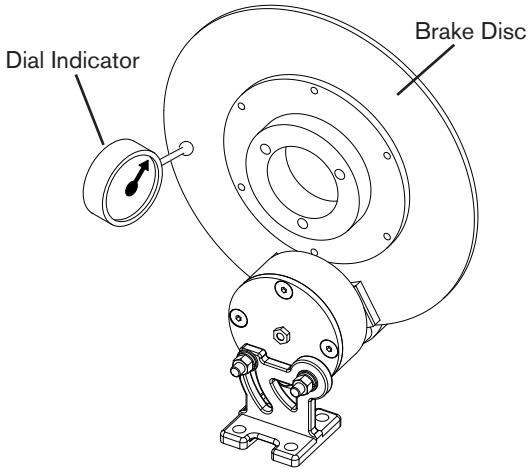


FIGURE 2

INSTALLATION (continued)

5. Insert the pull-up bolts and alternately and evenly tighten them to 15 ft–lb [20.3 Nm] torque.

6. To remove the Q.D. Bushing, remove the pull-up bolts and reinsert them into the threaded holes of the Q.D. Bushing. Tighten the pull-up bolts to push out the Q.D. Bushing.

7. Mount the Caliper Brake so the radius of the Disc runs approximately 0.06 in [1.6 mm] below the outside radius of the Friction Facing Assembly (Item 1), and with an equal distance between the Disc and Friction Facing Assemblies (See Figure 3).

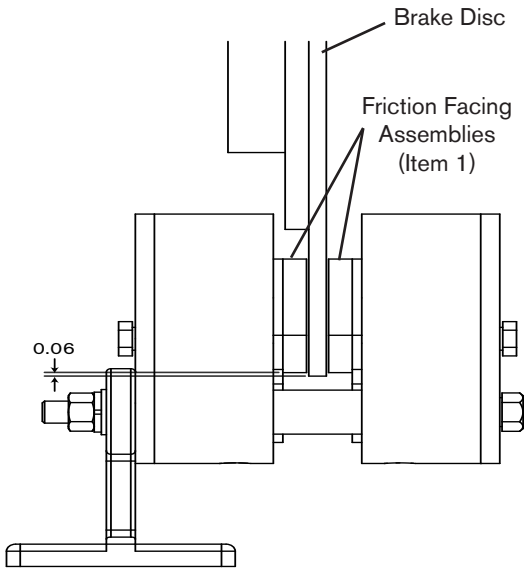


FIGURE 3

8. Use customer-supplied 3/8 in. bolts to mount the "T" support (Item 12) to a solid base (See Figures 3 and 4).

9. The Caliper Brake can be flush-mounted. The 3/8-16 mounting bolts can secure the Caliper Brake to a solid mounting surface. The recommended mounting hole pattern includes a .125-27 NPT thread to relocate the breather fitting and allow access for manual disengagement (See Figure 5).

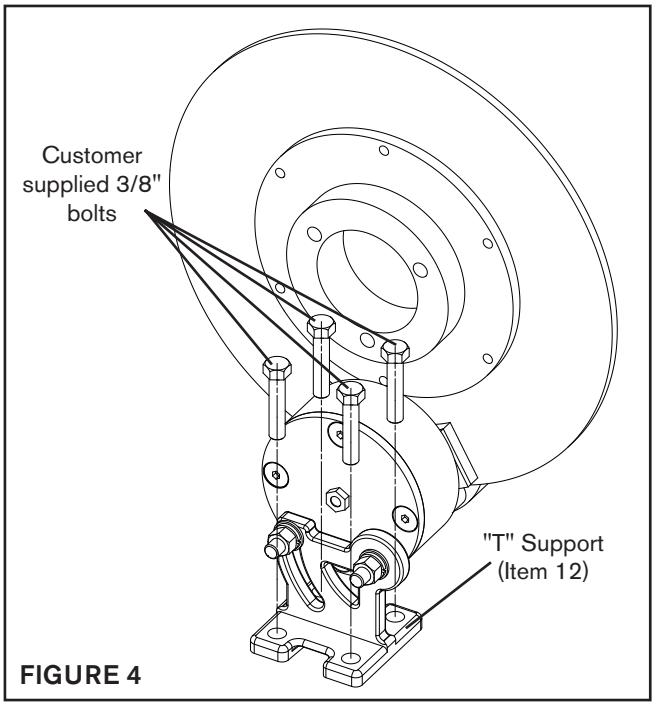


FIGURE 4

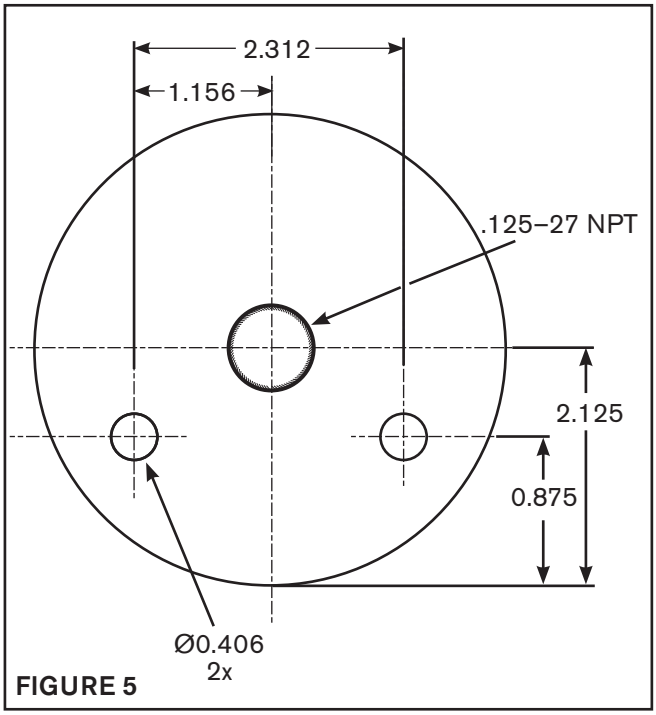


FIGURE 5

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

⚠ 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 and dry air, which meet 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 product. Align the air inlet ports to a down position to allow condensation to drain out of the air chambers of the product.

⚠ CAUTION

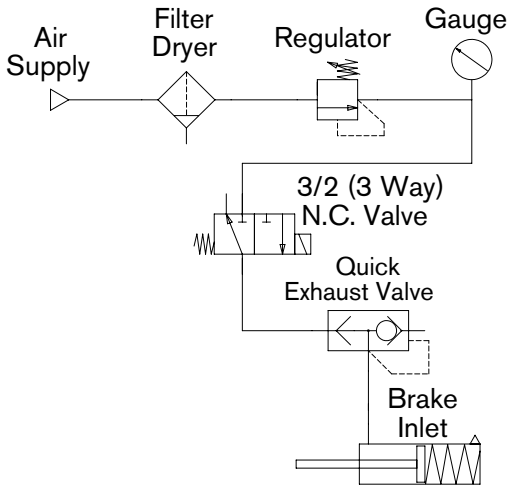
Low air pressure will cause slippage and overheating. Excessive air pressure will cause abrupt starts and stops, reducing product life.

TABLE 2

Air Pressure (Gage) Limits
6.9 Bar (100 PSI) Absolute Max.
0 Bar (0 PSI) Absolute Min.

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.

Typical Brake Control Circuit



⚠ WARNING

Never exceed maximum operating speeds listed for your product. (See Table 3).

⚠ 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”.

⚠ WARNING

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

⚠ CAUTION

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

TABLE 3

DBSE Disc Size	Max RPM
10 Inch O.D.	4500
12 Inch O.D.	3800
14 Inch O.D.	3200
16 Inch O.D.	2800

TROUBLESHOOTING

Symptom	Probable Cause	Solution
Failure to engage	Air not being exhausted due to a control valve malfunction.	Replace the control valve.
	Broken compression spring	Replace the compression springs.
	Internal contamination or corrosion.	Align the exhaust port to the six-o'clock down position to allow condensation to drain out of the exhaust port.
Failure to disengage	Los or lack of air pressure.	Check for control valve malfunction and replace it if necessary.
		Check for air leaks in the air lines and around the o-ring seals. Replace the air lines or o-ring seals if necessary.
	Internal contamination or corrosion.	Align the exhaust port to the six-o'clock down position to allow condensation to drain out of the exhaust port.
Loss of torque	Worn or dirty Facings.	Replace Friction Facings.

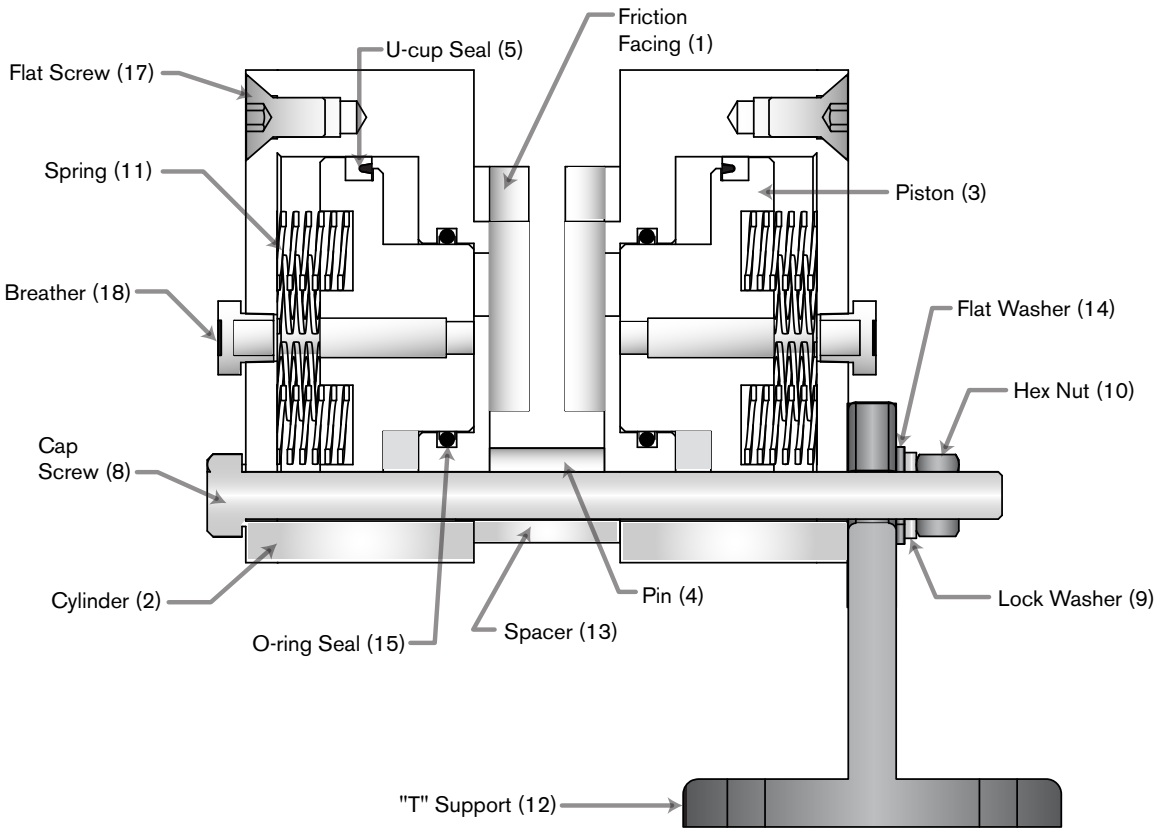
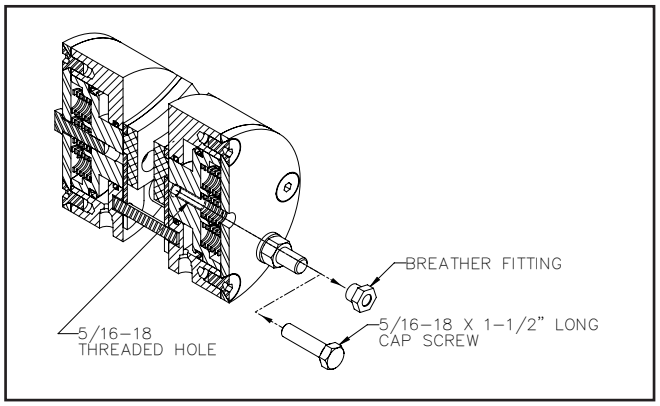


FIGURE 8

MANUAL DISENGAGEMENT

For manual disengagement of the brake, remove the breather fittings. Insert a 5/16-18 x 1-1/2 bolt or cap screw through the breather port. Screw into the piston until the caliper brake is disengaged.



PARTS REPLACEMENT - FRICTION FACING REPLACEMENT

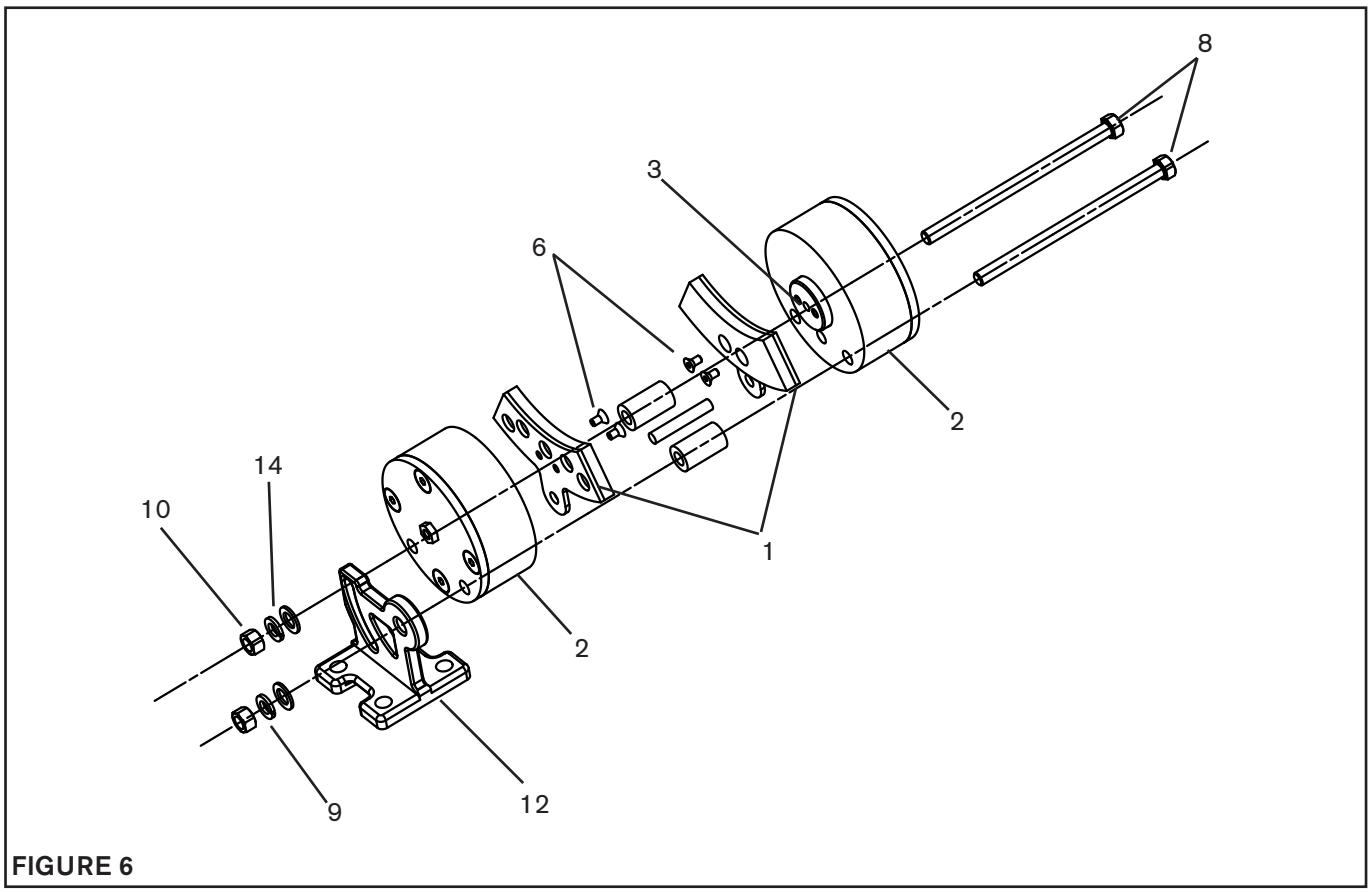


FIGURE 6

Refer to Figure 6.

1. Remove the two Hex Head Screws (Item 8), Hex Head Nuts (Item 10), Lock Washers (Item 9), and Flat Washers (Item 14). Then remove the two Cylinders (Item 2) from the "T" Support (Item 12).

2. Separate the two Cylinders (Item 2).

3 Remove the Flat Head Cap Screws (Item 6) securing the old Friction Facing Assemblies (Item 1) to the Piston (Item 3).

4. Apply Loctite® 242 to the threads of the Flat Head Screws (Item 6); then secure the new Friction Facing Assemblies (Item 1) to the Pistons (Item 3).

5. Tighten the Flat Head Cap Screws (Item 6) to 62–81 in-lb (7.0–9.2 Nm).

6. Using the two Hex Head Screws (Item 8), Hex Nuts (Item 10), Lock Washers (Item 9), and Flat Washers (Item 14), secure the two Cylinders (Item 2) to the "T" Support (Item 12).

PARTS REPLACEMENT - SEAL REPLACEMENT

Refer to Figure 7.

1. Remove the two Hex Head Cap Screws (Item 8), Hex Head Nuts (Item 10), Lockwashers (Item 9) and Flat Washers (Item 14). Then remove the two Cylinder Assemblies (Item 2) from the "T" Support (Item 12). (See Figure 6).

2. Separate the two Cylinder Assemblies (Item 2) and set the Spacers (Item 13) and Pin (Item 4) aside. (See Figure 6).

3. Remove the Flat Head Cap Screws (Item 6) securing the Shoe Facings (Item 1) to the Piston (Item 3).

⚠ CAUTION

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

4. Remove the Flat Head Cap Screws (Item 17), End Cap (Item 16) and Springs (Item 11) from both Cylinders (item 2).

5. Push Pistons (Item 3) out of both Cylinders (Item 2).

6. Remove old U-Cup Seals (Item 5) and O-Rings (Item 15) from both Pistons (item 3).

7. Clean the O-Ring grooves of the Pistons (Item 3); then, lubricate the new U-Cup Seals and O-Rings and contact surfaces with a thin film of fresh o-ring lubricant.

8. Install the new U-Cup Seals (Item 5) and O-Rings (Item 15) onto both Pistons (Item 3).

⚠ CAUTION

Orientation of U-Cup Seal is important. Open side of U-Cup Seal should face into the Cylinder (Item 2).

9. Place Springs (Item 11) into spring pockets of Pistons (Item 3).

10. Attach End Caps (Item 16) to Cylinders (Item 2) with Flat Head Cap Screws (Item 17).

Note

Orientation of mounting holes in End Cap must match mounting holes in Cylinder. Alternately and evenly tighten Flat Head Cap Screws to 178–232 in-lbs (20.1–26.2 Nm).

11. Apply Loctite 242 to the threads of the Flat Head Cap Screws (Item 6); then secure the Friction Facings (Item 1) to the Pistons (Item 3). Tighten Flat Head Cap Screws (Item 6) to 62–81 in-lbs (7.0–9.2 Nm).

12. Using the two Hex Head Cap Screws (Item 8), Hex Nuts (Item 10), Lock Washers (Item 9) and Flat Washers (Item 14), secure the two Cylinder assemblies (Item 2) with the Spacers (Item 13) and Pin (Item 4) to the "T" support (Item 12).

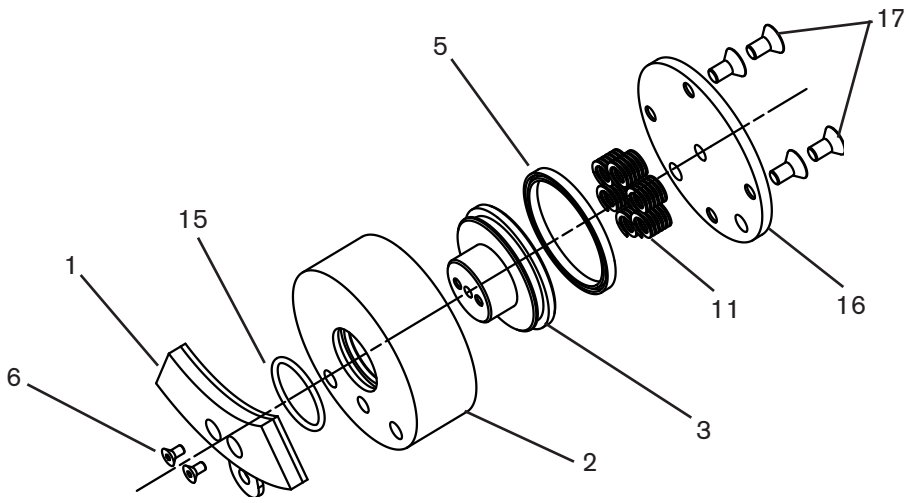


FIGURE 7

PARTS LIST

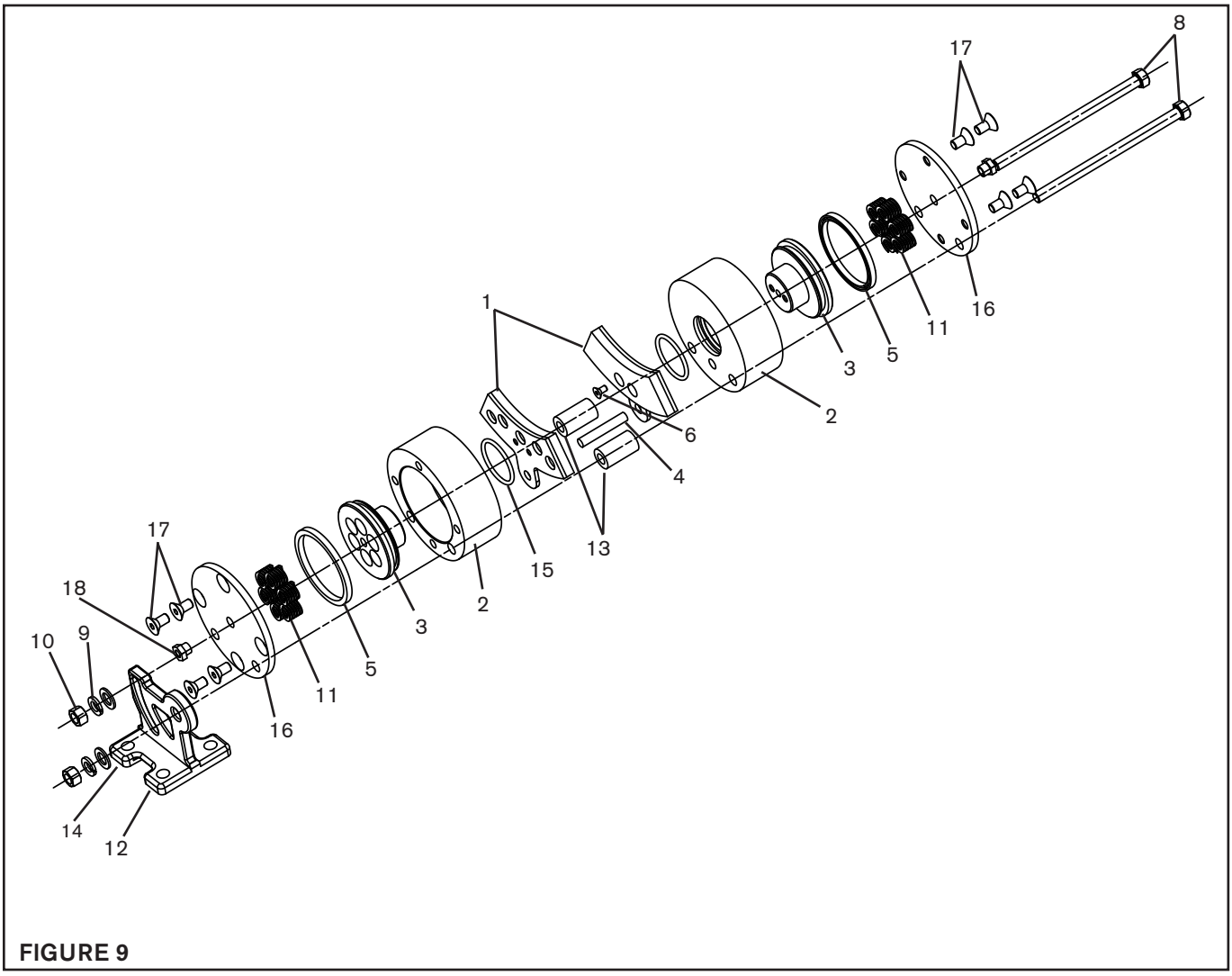


FIGURE 9

ITEM	DESCRIPTION	QTY
1	Friction Facing Assembly	2
2	Cylinder	2
3	Piston	2
4	Pin	1
5	U-Cup Seal	2
6	Cap Screw	4
8	Hex. Head Screw	2
9	Lock Washer	2
10	Hex. Nut	2

ITEM	DESCRIPTION	QTY
11	Compression Spring	12*
12	"T" Support	1
13	Spacer	2
14	Flat Washer	2
15	O-Ring	2
16	End Cap	2
17	Flat Cap Screw	8
18	Breather Fitting Plug	2

* Varies by unit.

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.

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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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